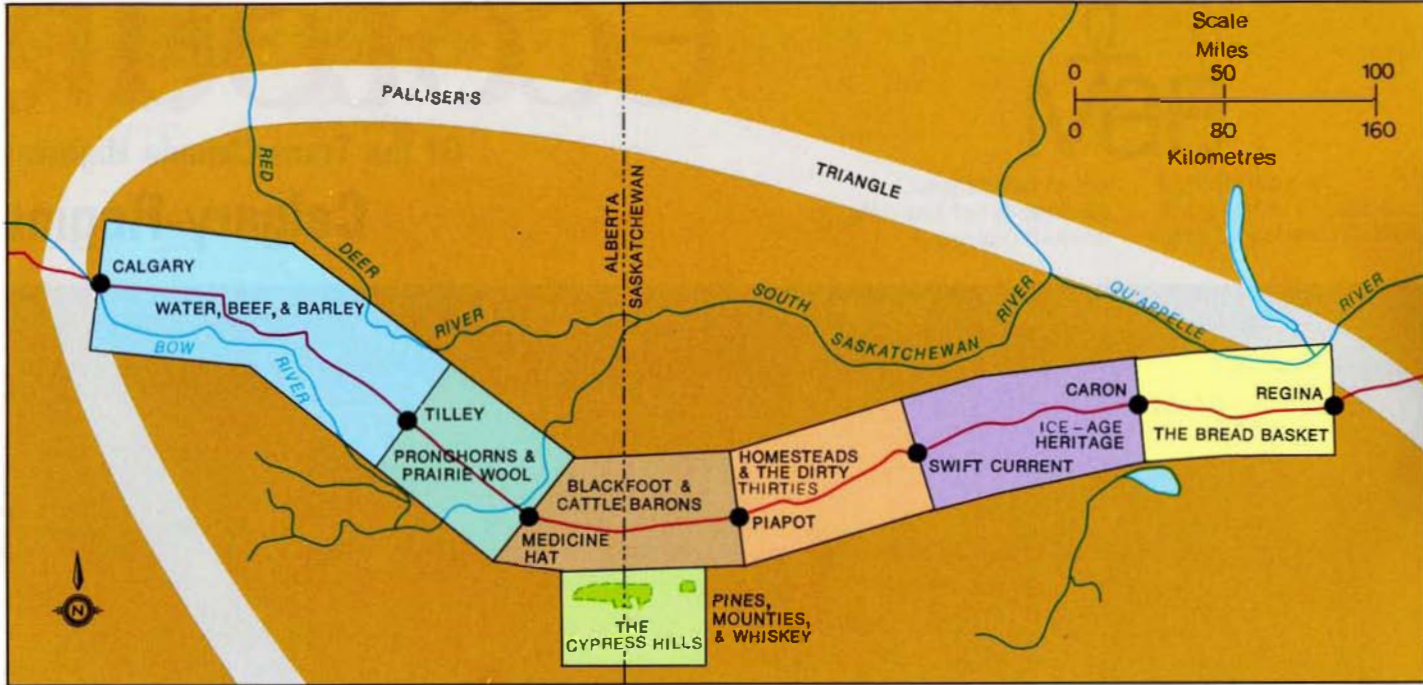


# ECOTOUR<sup>®</sup>

Of the Trans-Canada Highway

Calgary-Regina





... in the central part of the continent there is a region, desert, or semi-desert in character, which can never be expected to become occupied by settlers . . . . Although there are fertile spots throughout its extent it can never be of much advantage to us as a possession . . . Knowledge of the country on the whole would never lead me to advocate a line of communication . . . .

Captain John Palliser (British North American Exploring Expedition 1857-1860), 1862

I fearlessly announced that the so-called arid country was one of unsurpassed fertility and that it was literally the 'Garden' of the whole country.

John Macoun (Sandford Fleming Expedition, 1872-1875), 1882

It is fascinating, 100 years later, to look at the land Palliser the explorer saw as a desert and Macoun the botanist described as a garden. "Palliser's Triangle" receives only 300-400 mm (12-16 inches) of precipitation annually. The area is also dry because most of the moisture falls during the summer when it is sunny, hot, and windy here, and rapidly evaporates. Droughts occur, and this may account for the different opinions of Palliser and Macoun: Palliser saw this area in a dry year and Macoun in a wet one. Droughts in the late 1880's and mid-1930's made Palliser's Triangle unsuitable for farming. Since then, however, better farming equipment and methods, drought-resistant crops, irrigation, and cattle ranching on land too poor for cultivation have led to a productive agricultural economy.

The land slopes toward the east. Calgary, at the western edge, is 3400 feet (1000 m) above sea level and Regina 1900 feet (580 m). If you were in a satellite 100 miles

(160 km) up you would see a vast plain broken by only three major features: the valleys of the Bow and South Saskatchewan rivers, the Cypress Hills Plateau, and the Missouri Coteau. "Coteau" means a hillside, and the Missouri Coteau appears as a step on this sloping plain.

If you saw this area from an airplane the view would be dominated by rectangular fields, valleys of two major rivers, and several large man-made lakes. Large unfarmed areas, such as the Great Sand Hills or the grassland area between Tilley and Medicine Hat, would also show up well in contrast to the patchwork pattern of fields. You would see only three small areas of natural forest: spruce and pine on north slope of the Cypress Hills, clumps of aspen in the Great Sand Hills, and a variety of broad-leaved trees along the Qu'Appelle Valley. To the west, north, and east, Palliser's Triangle is framed in a giant horseshoe of aspen parkland that crosses the Trans-Canada Highway west of Calgary and east of Regina.

From your car you can see three major habitat groups. The roadside habitat is dominated by introduced plants such as sweet clover, crested wheat grass, and thistle. Roadside also provide homes for badgers, gophers, other small mammals, birds, and insects.

The second group of habitats is also man-made and includes irrigated fields, irrigation ditches, reservoirs, dryland fields and summer fallow, seeded pastures, fence lines, farmyards, gardens, and shelterbelts. Animals and plants adapted to these habitats include native species such as white-tailed deer, coyotes, gophers, skunks, and ducks, plus many introduced birds, crops, and weeds.

The third habitat group exists today much as it has for several thousand years: river valleys that cannot be farmed, marshes, alkali sloughs, prairie potholes, sand hills, the

# Crossing Palliser's triangle one century later

Cypress Hills, and other grassland areas too dry, hilly, or stony to cultivate. These habitats occupy only a small area but are important as yardsticks against which we can measure the effects of man on the natural landscape.

You may wonder what natural forces and human events have shaped the landscape of this great plain. Ninety million years ago this entire area was an ocean. Later, pressure within the earth's crust tilted the ocean bed up toward the west. From 2 million until about 10,000 years ago, most of this area was periodically covered by glaciers which sculptured the land into its present appearance.

The first humans in this area came from Asia over the Bering Strait at least 15,000 years ago. Signs of early inhabitants include paintings and hieroglyphics, stone outlines of animals set out on the prairie, and stone hunting equipment. Three hundred years ago this plain and adjacent woodlands were inhabited by an estimated 15,000 Indians. These people, whose only mode of travel was by foot, lived off the land in ecological harmony with the natural environment. The introduction of the horse around 1740 gave the Indians increased mobility and slowly began to change their way of life. However, the full impact of white men was not felt until about the time of Palliser's expedition in 1859 because most of the early explorers and fur traders had bypassed southern Alberta and Saskatchewan.

After the mid-1800's change became more rapid. Less than 30 years after Palliser the bison—mainstay of the Indian's way of life—had all but been exterminated by white men. The first ranchers drove cattle in from the United States about the same time that the North West Mounted Police (1874) and the Canadian Pacific Railway (1883) arrived from the east. Although some settlers came with the railroad the major influx, mostly European, occurred in the early 1900's. Along



Coyote



Prickly pear cactus

with these immigrant farmers came new crops, new animals, and new weeds. In all of Canada probably no area has seen such a great change in such a short period of time.

Before turning to the individual highway sections, examine the panoramic centerfold which provides an artist's impression of the landscape between Calgary and Regina. Since the story of Palliser's Triangle is essentially the same throughout, various natural and human events have been highlighted in those highway sections in which they are most noticeable. However, these same features may also occur elsewhere on the route. Watch for them!

You may have expected the prairies to be an uninteresting rather lifeless landscape. If so, you will be pleasantly surprised by the diversity of topography, vegetation, and wildlife. Travel in the early morning or late evening can be rewarding, for at these times the prairies come to life as birds and animals that take refuge from the hot sun come out to forage, and the sky is an endless canopy of color.



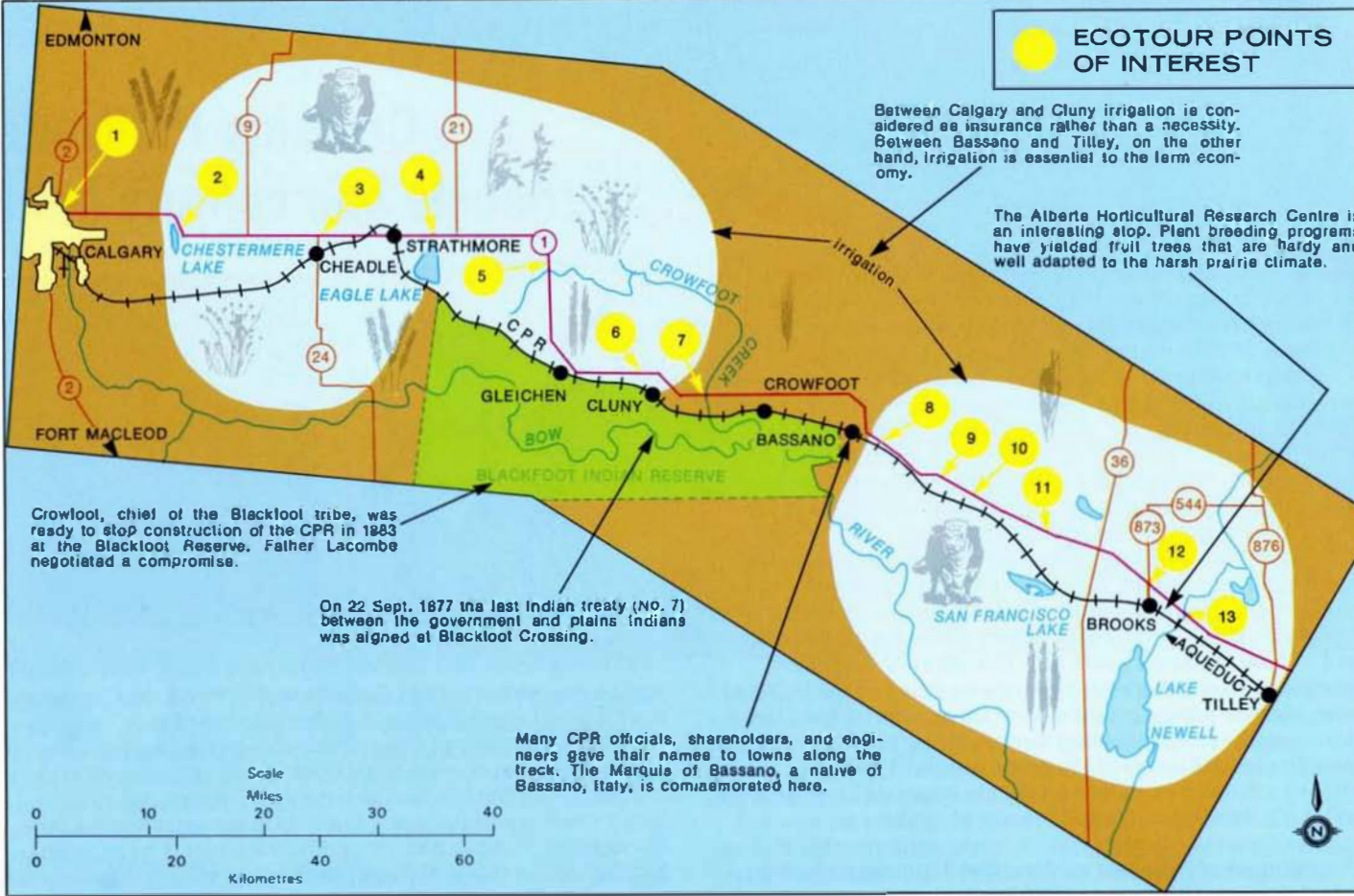
Cattle roundup, Cypress Hills (Saskatchewan Government photo)



Durum wheat, Grand Coulee



## ECOTOUR POINTS OF INTEREST



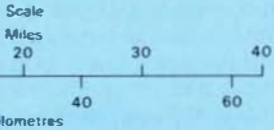
Between Calgary and Cluny irrigation is considered as insurance rather than a necessity. Between Bassano and Tilley, on the other hand, irrigation is essential to the farm economy.

The Alberta Horticultural Research Centre is an interesting stop. Plant breeding programs have yielded fruit trees that are hardy and well adapted to the harsh prairie climate.

Crowfoot, chief of the Blackfoot tribe, was ready to stop construction of the CPR in 1883 at the Blackfoot Reserve. Father Lacombe negotiated a compromise.

On 22 Sept. 1877 the last Indian treaty (No. 7) between the government and plains Indians was signed at Blackfoot Crossing.

Many CPR officials, shareholders, and engineers gave their names to towns along the track. The Marquis of Bassano, a native of Bassano, Italy, is commemorated here.



When this area was ice-covered 18,000 years ago Calgary was the meeting place of mountain glaciers that moved out onto the prairie and continental glaciers that advanced from the northeast. Today, Calgary is the meeting place of two distinct ecological zones. West of the city is the foothills zone with a frost-free season so short that grain crops are few; it is a zone of natural habitats dominated by grasslands with abundant aspen and willow clumps. East of the city begins a zone dominated by man-made habitats, with a frost-free season of 90 days or more that is better suited for grain production.

Water is clearly the key to agricultural production in this area. Man-made lakes and water-carrying ditches are part of a massive irrigation system begun in 1910 around Brooks. The contrast between irrigated and unirrigated land can be seen repeatedly. Irrigation ditches, which follow the land contours like giant snakes, are lush and green along their banks. Shelterbelts around irrigated farms, and the more luxuriant grain and forage crops contrast sharply with those in nearby unwatered areas. The higher forage production on irrigated land also supports intensive beef production in feedlots.



Chestermere Lake and irrigation notes

# Water, beef, and barley

## Calgary-Tilley

0 miles (0 km) TCH and Deerfoot Trail (Highway 2)

1. Calgary, Gaelic for "running water," began in 1875 when the North West Mounted Police built a fort at the junction of the Bow and Elbow rivers. The Canadian Pacific Railway (CPR) arrived in 1883. Today Calgary has a population of 450,000 and is the center of Canada's petroleum industry.

10.7 miles (17.2 km)

2. Chestermere Lake is an example of a man-made recreation haven created by the introduction of water to the dry prairie. Other man-made lakes are Eagle, Lathom, San Francisco, and Newell, all of which are important sources of irrigation water and valuable waterfowl habitat.

12.0 miles (19.3 km)

3. The four elevators at Cheadle symbolize grain production in this area. Elevators, which are used for grain storage, are dominant features of most settlements between Calgary and Regina.

9.8 miles (15.8 km)

4. This region is characterized by mixed farming where, depending on local soil, availability of irrigation water, and markets, a combination of grain, forage, and livestock is produced. Wheat, barley, and beef are the primary products; but dairy cattle, hogs, poultry, and scattered fields of oats, rapeseed, corn, and rye may also be seen, particularly between Calgary and Strathmore.

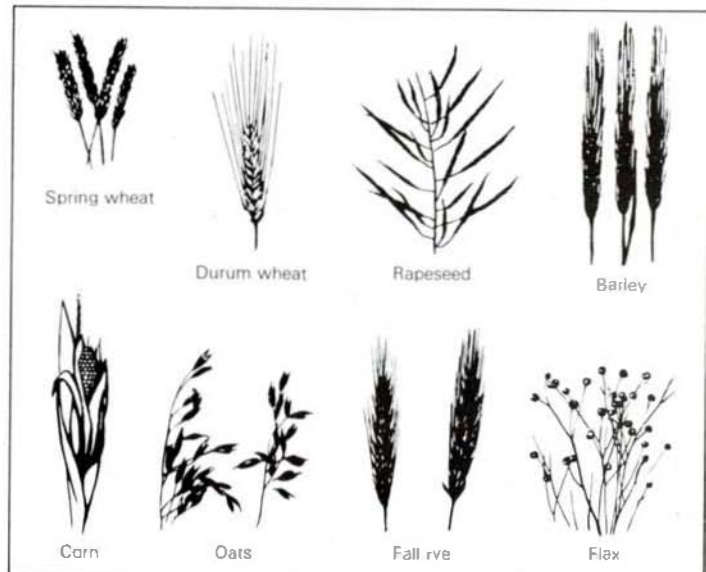
13.4 miles (21.6 km)

5. The main crops along this section of the highway are wheat, barley, and flax. These crops are improved varieties of plant species used by man for over 10,000 years. When wheat was first used, raw kernels were probably chewed, just as many farm children chew them now during harvest. Barley, one of the first cereals cultivated by man, may be distinguished from wheat by the fine-textured beardlike hairs attached to the individual kernels. It is used mainly for livestock feed and also for malt in the manufacture of beer. Flax is easily recognized in August by its light blue flowers. Its oil is used to make paints, while the meal, a by-product, is used in livestock rations.



Grain elevator

(3)



(4&5)

6. This high point is the Cluny end moraine, which is a ridge of earth and rock left by melting glaciers. On a clear day you can see the Rocky Mountains to the west. The valley of the Bow River lies to the south and the CPR, so important in the history of this area, passes through the Blackfoot Indian Reserve.



Satellite view: irrigated fields (red), dryland farming (white and gray fields), grasslands (brown)

7. On both sides of the highway ranches nestle in the valley of Crowfoot Creek. Buildings are often located in valleys where they are sheltered from winter winds. This adaptation to climate was also practised by Indians who escaped winter blizzards by leaving the open plains to find shelter and firewood in river valleys, wooded hills, or the aspen parkland.

18.0 miles (29.0 km)

8. This typical prairie marsh with its cattails, sedges, rushes, and willows is a very important habitat for ducks, geese, and other waterfowl that travel the international flyways. The abundance of waterfowl is determined by a number of factors, including wet and dry years, the draining of marshes for agricultural uses, and attempts by man to create water impoundments. An evening stop at a marsh off the highway is an unforgettable experience, especially because of the chorus of waterfowl and shore birds that can be heard in a land that is otherwise silent except for the wind in the grass.

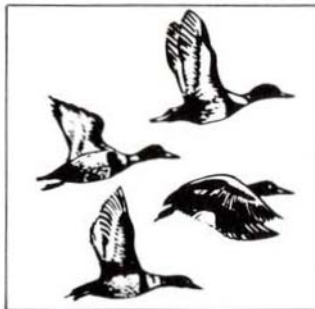
7.2 miles (11.6 km)

9. Near the Lathom Reservoir most of the vegetation has been introduced from other parts of the world: barley from Ethiopia, wheat from Iraq, caraganas and poplars from Russia, Russian olives from Asia, elm from Manchuria, Scots pine from Sweden, Colorado spruce from the United States, and Nanking cherry from China. There are also many weed species such as Russian thistle, common dandelion, and wild mustard from all over the world.

2.6 miles (4.2 km)

10. A few irrigated fields in this vicinity represent one of the first attempts to grow corn on the Canadian prairie. Corn is being planted in anticipation of increasing the yield of cattle feed above that currently being obtained from barley and other cereal and forage crops. Various legumes (alfalfa and clover) and grass crops (brome and timothy) have also been developed to support livestock production in this area.

6.8 miles (10.9 km)



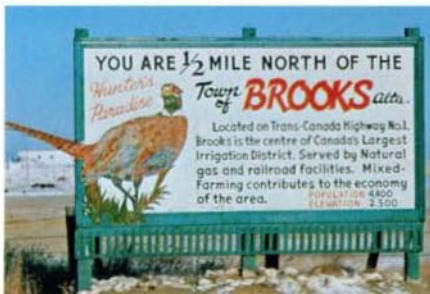
Waterfowl in flight

(8)



Alberta's wild rose

(1)



Ring-necked pheasant

(12)





Corn and pivot irrigation system

(10)

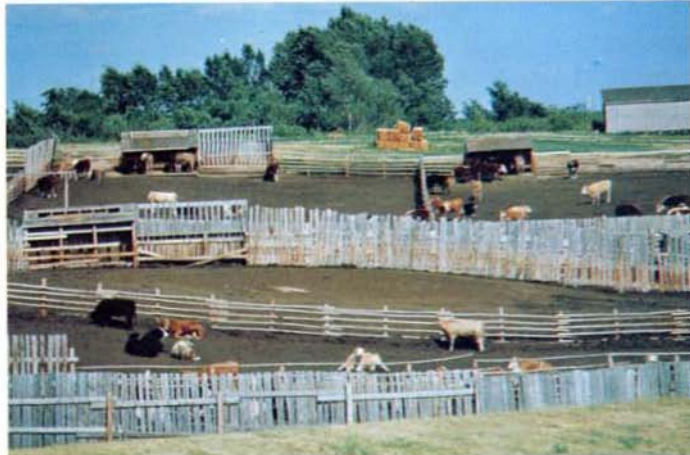
11. The area between Bassano and Brooks is noted for intensive beef production. Warm chinook winds sweeping over the Rocky Mountains keep these grasslands free of snow most winters, enabling cattle to feed on the open range. Cattle are also raised in feedlots, which are used to produce beef over a shorter period of time. On a diet of barley and other feeds cattle reach a weight of 1000 pounds (450 kg) in about 18 months. It takes at least 2-3 years on the open range to produce an animal this large. Feedlots were developed as a result of surplus supplies of grain in western Canada and depressed world market prices, but with increased world demand for grains, cattle in this area may once again be raised on the open range.

10.4 miles (16.7 km)

12. In 1908 the ring-necked pheasant, which originated in China, was imported from Pennsylvania by Calgary sportsmen and released in the area east of Brooks. The thick cover of trees and shrubs along irrigation canals provides ideal shelter, and grain fields and feedlots supply the wheat and barley of the pheasant's diet.

The surrounding native grasslands are home to the sharp-tailed grouse. Grouse prefer habitat adjacent to cultivation where at least three-quarters of the land remains in native vegetation. Wild rose, snowberry, wolf willow, buffalo berry, willow, and chokecherry not only provide cover but also the berries and winter buds which, together with insects such as grasshoppers, make up their diet.

4.6 miles (7.4 km)



Feedlot

(11)

13. Near Brooks there is a mile-long (1.6 km) aqueduct that carries water from Lake Newell to fields on the north side of the highway. During the growing season, various types of irrigation systems can be observed in this area. These include gravity irrigation from ditches, rolling-wheel sprinkler systems, and more recently developed pivot sprinkler systems.

10.8 miles (17.4 km)

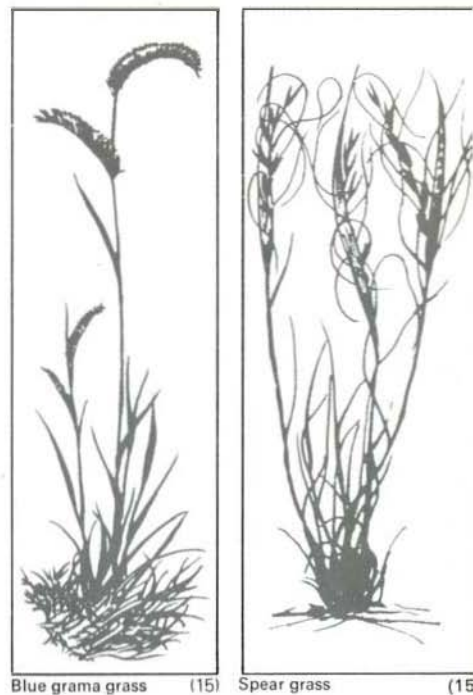


Tillev aqueduct (R. E. Stevenson)

(12)

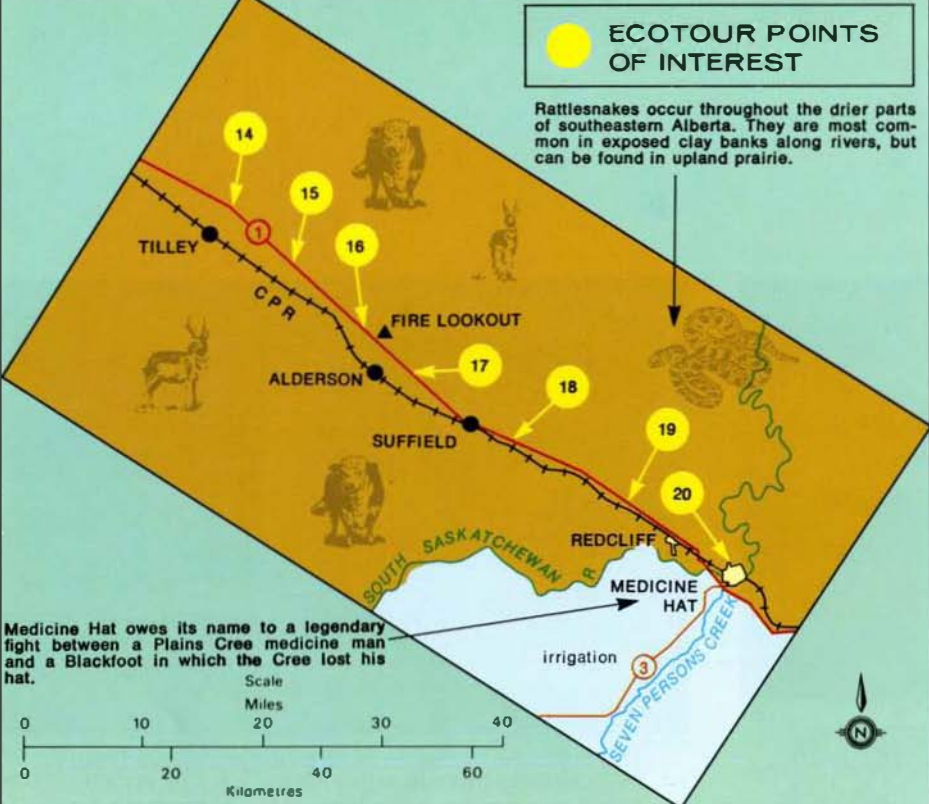
**● ECOTOUR POINTS OF INTEREST**

Rattlesnakes occur throughout the drier parts of southeastern Alberta. They are most common in exposed clay banks along rivers, but can be found in upland prairie.



Blue grama grass (15)

Spear grass (15)



Medicine Hat owes its name to a legendary fight between a Plains Cree medicine man and a Blackfoot in which the Cree lost his hat.

Of the many large animals that once roamed the shortgrass prairie only the pronghorn antelope remains. The pronghorn and bison were ecological partners: the bison relied heavily upon "prairie wool" composed of various grasses, the pronghorn on sagebrush and herbs.

Pronghorn antelope have survived the obstacles of fences, highways, Herefords, and man. In the early part of this century they were nearly eliminated by overhunting. Wildlife sanctuaries and hunting restrictions have helped their recovery, but severe winters, eradication of sagebrush to increase the growth of grasses for livestock, and encroaching cultivation still limit their populations.

The horse has been an important factor in grassland ecology. In the drought years of the 1800's, horses (over 12,000 in 1877) owned by the Blackfoot Indians competed for grass with bison. The horse's habit of close grazing discouraged the growth of grass and promoted the proliferation of sagebrush. In the early 1900's overgrazing by farm horses contributed to a further deterioration of these grasslands. It wasn't until the 1930's, when the tractor replaced the horse, that the grasslands recovered and returned to a more natural state.

Prairie fires also were once a common feature of the grassland environment, but unlike the horse, they tended to increase the growth of grass and

reduce the amount of sagebrush and other woody plants.

14. Well pumps and storage tanks stretched out along the highway mark this small oil-producing area. Oil, located 3000 feet (900 m) under the surface, originated as sea life about 120 million years ago. Natural gas was discovered near here in 1883 by a railway engineer looking for water to supply steam locomotives. About 500 million tons (450 million t) of low-quality coal lie west of here near the Bow River. This coal developed from lush tropical forests which grew there about 80 million years ago.

5.6 miles (9.0 km)

15. The view eastward from this point is a good example of the grassland known as prairie wool which existed when this region was first settled. The main grass species are spear and blue grama grasses. Looking west from here you can see poplar shelterbelts in irrigated areas on the distant horizon.

8.6 miles (13.8 km)

16. Cattle ranching, rather than mixed farming, is the major use of land here. Wooden loading ramps in pasture corners and windmills at watering places are signs that these grasslands are used by range cattle.

4.9 miles (7.9 km)



# Pronghorns and prairie wool

## Tilley - Medicine Hat



Wary pronghorns keep their distance (17)



Pronghorn antelope (17)

17. Pronghorn antelope may still be seen between Tilley and Suffield. They mingle freely with cattle, sheep, and deer. Pronghorns signal to each other by raising the long hairs of their rump, which flashes brightly in the sunlight. These animals can see objects up to 4 miles (6 km) away and are the fleetest North American mammal, capable of running 60 mph (100 km/h) in short bursts. However, they are poorly adapted to deep snow, and during winters when deep snow persists many pronghorns die and others move south as far as Montana.

10.8 miles (17.4 km)

18. In August one of the conspicuous yellow flowers here is gumweed. Plains Indians used the sticky heads of gumweed to cover cuts or wounds, much as Indians from forest regions used resin from pine trees.

9.6 miles (15.4 km)



Gumweed

(18)



Bison rubbing stone

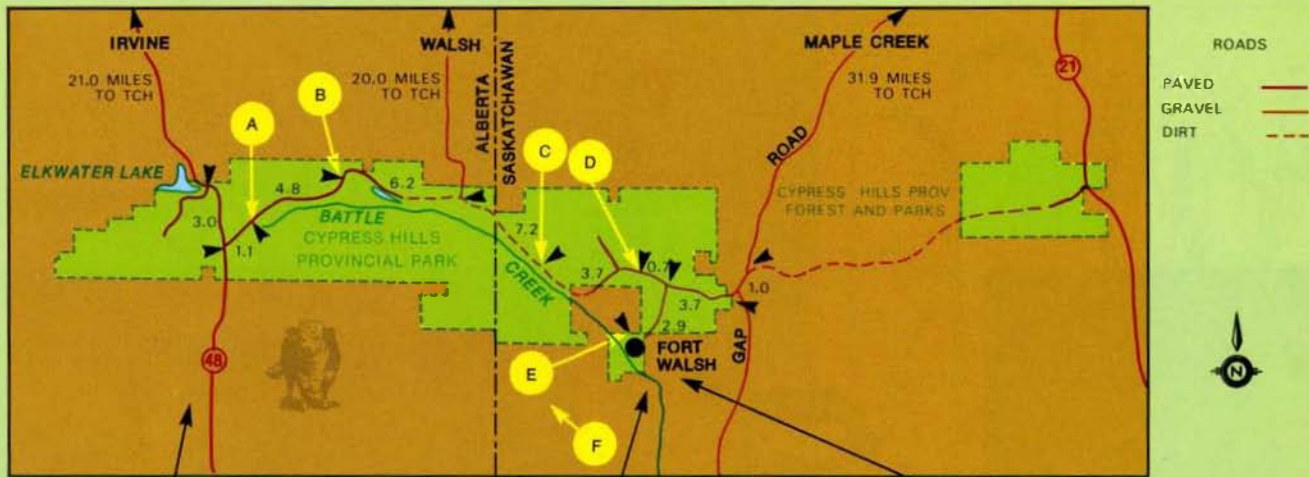
(19)

19. Many granite boulders occur along the highway between Tilley and Redcliff. These large stones were carried by glaciers from bedrock areas of northern Saskatchewan. Geologists have estimated that Medicine Hat was covered by 2300 feet (700 m) of ice during the last glaciation, so it is little wonder that there are still visible signs of the ice age. Many of these boulders served as rubbing stones for bison and some of them are used by cattle for the same purpose today.

11.6 miles (18.7 km)



20. In addition to its historical importance as a ranching center, Medicine Hat is the location of a variety of industries that rely on natural gas for energy. Medicine Hat and nearby Redcliff are well known for their pottery, brick, and glass industries and commercial greenhouses.



The name "Gros Ventres" means "big bellies," a result of a faulty translation of the hand motion which these Indians used in sign language to designate themselves.

Battle Creek was the site of an Indian massacre by American whiskey traders in 1873 which led to the formation of the North West Mounted Police.

In the winter of 1878-79, 20,000 buffalo robes were used in trade at the town of Fort Walsh.

**WARNING** — gravel and dirt roads are impassable during wet weather and are definitely not recommended for vehicles pulling trailers at any time. If in doubt check with tourist bureaus located at Walsh and the Maple Creek turnoff.

\*Minimum travel time—4h

**ECOTOUR POINTS OF INTEREST**

*In October, 1884, . . . a Canadian Pacific train running from Calgary to Winnipeg was boarded at several way stations by people loaded down with rifles, saddles and other equipment. They had heard that seven bison had been seen in the Cypress Hills and were on their way to participate in the slaughter of "the last remnant of the vast herd which had once roamed the prairies of Canada . . ."*

J. G. Nelson, *The Last Refuge*, 1973

The magnificent grasslands and wooded slopes of the Cypress Hills have truly been a last refuge. Chief Sitting Bull and 5000 of his followers sought sanctuary here in 1876. This area also sheltered some of the last bison, grizzly bear, and wolf, and today harbors the endangered trumpeter swan.

These hills were first named "Montagnes de Cyprès" by French-Canadian voyageurs who mistook lodgepole pine for the jack pine (cyprès) of eastern Canada. The hills have lower temperatures and about 80 mm (3 inches) more rainfall annually than the surrounding plains. The area has a rich variety of plants and animals, some of them unique in Canada. Animals common to the Rocky Mountain foothills such as elk and mule deer, and plants such as white spruce and lodgepole pine are also found here. In addition, the dry prairies around the Cypress Hills are the northern limit of various desert-loving species such as sage grouse, sagebrush voles, and hog-nosed snakes.

The area around the Cypress Hills was a hunting ground for Blackfoot, Plains Cree, Sioux, Assini-

boine, and Gros Ventres Indians when Major James Walsh established a North West Mounted Police base at Fort Walsh in 1875. Earlier, whiskey runners from Fort Benton, Montana had run oxen-drawn supply trains through these hills on their way to Fort Whoop-up (near Lethbridge) and Farwell's trading post (near Fort Walsh).

25.1 miles (40.4 km) TCH to A

A. About 40 million years ago this flat plateau was the bottom of a stream that carried gravel from the Rocky Mountains. Pressures from within the earth's crust had elevated a much larger area, but severe erosion over millions of years reduced its size substantially. Tall fescue grasses, wild rose, lupines, and shrubby cinquefoils dominate the landscape but, in the absence of fire lodgepole pine forests will eventually take over.

4.8 miles (7.7 km)

B. This viewpoint provides a superb panorama of the vast prairie to the north and a close-up of the landscape around Reesor Lake. Cool and moist north-facing slopes are covered with stands of aspen and spruce while the warmer and drier south-facing slopes support grass and scattered clumps of aspen. Mule and white-tailed deer, elk, coyote, and ruffed and sharp-tailed grouse are common. Recent introductions include moose, wild turkey, and rainbow trout.

13.4 miles (21.6 km)

# Pines, mounties, and whiskey

## The Cypress Hills



panoramic view, Reesor Lake

(B)

The most impressive natural forest between Calgary and Regina occurs at this picnic area. The larger white spruce are 120 years old, and their presence indicates that this small forest escaped the widespread fires that swept through the Cypress Hills in 1886.

3.7 miles (6.0 km)

The lush grasslands on the plateau yield about 1000 pounds of hay per acre (1100 kg/ha) each year. In contrast, the surrounding shortgrass prairie at lower elevations yields about 250-500 pounds (280-560 kg). Little wonder that Macoun described these hills as the best pasture "in all the wide North-West."

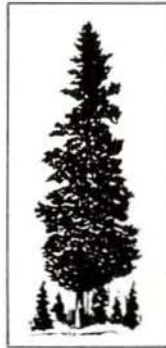
3.6 miles (5.8 km)



North West Mounted Police



Lodgepole pine



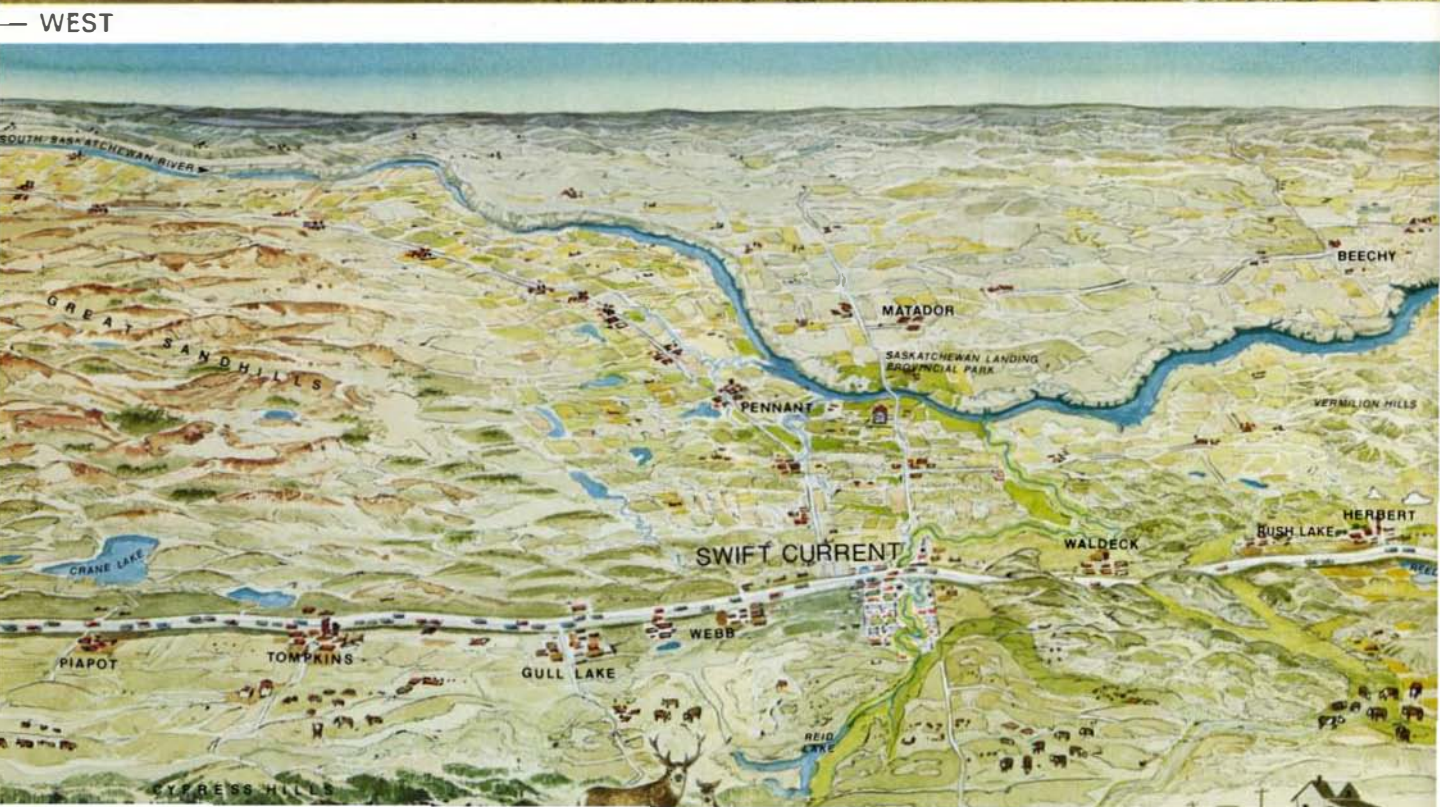
White spruce

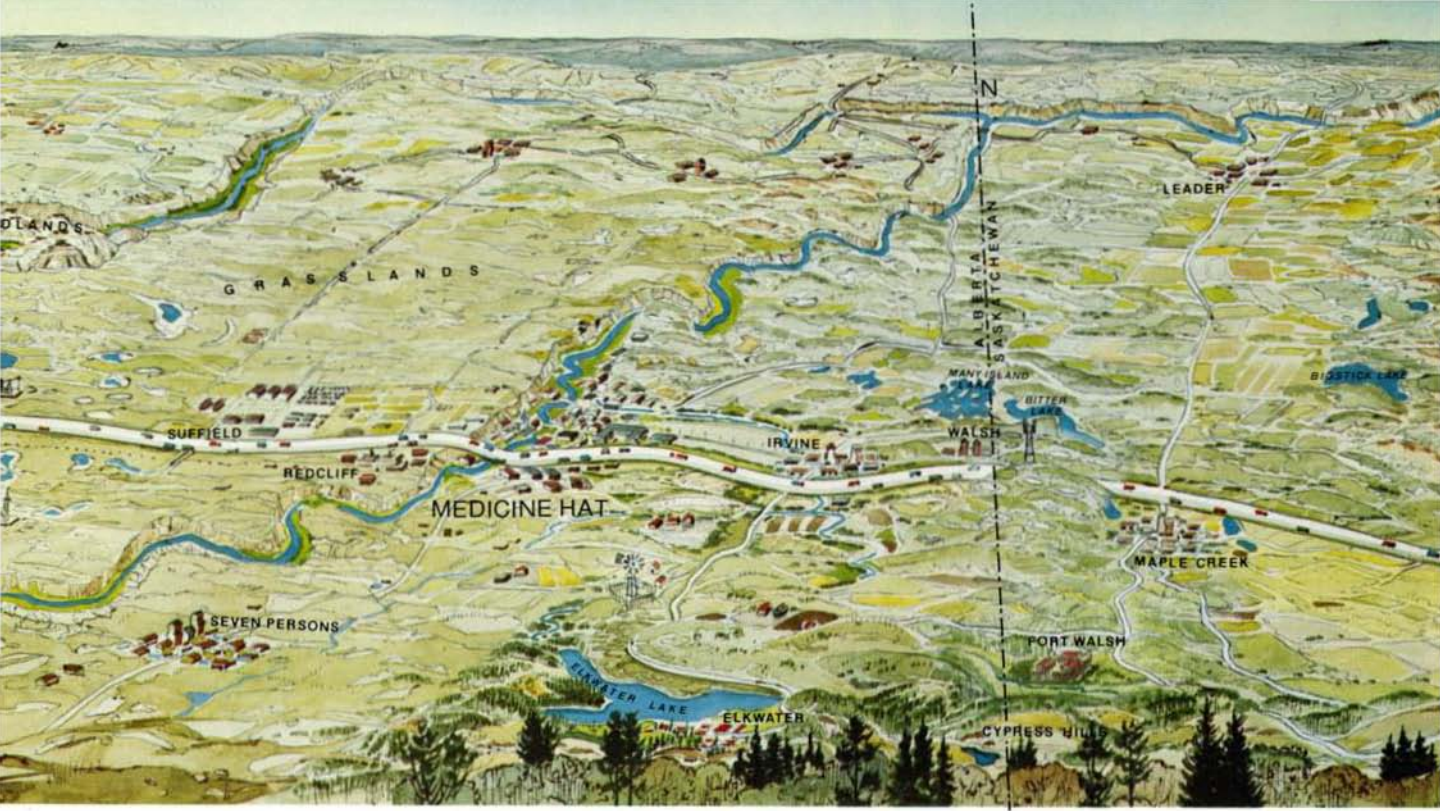
E. Fort Walsh is a National Historic Site. Compare the present-day view of Battle Creek valley to the photograph taken in 1878. There are many more trees on the valley slopes today than in 1878, mainly because no major fires have occurred in the past 70 years. The use of pine and spruce for building the fort and nearby town and for burning as firewood also contributed to the barren appearance.

F. During the last glacial advance 20,000 years ago, southbound ice pushed up to the 4500-foot (1400-m) level of this plateau, leaving a 300-foot-high (90-m) unglaciated "island" of 80 square miles (210 km<sup>2</sup>). It was on this island that many of the unique plants and animals of the Cypress Hills survived and later re-invaded the adjacent slopes.

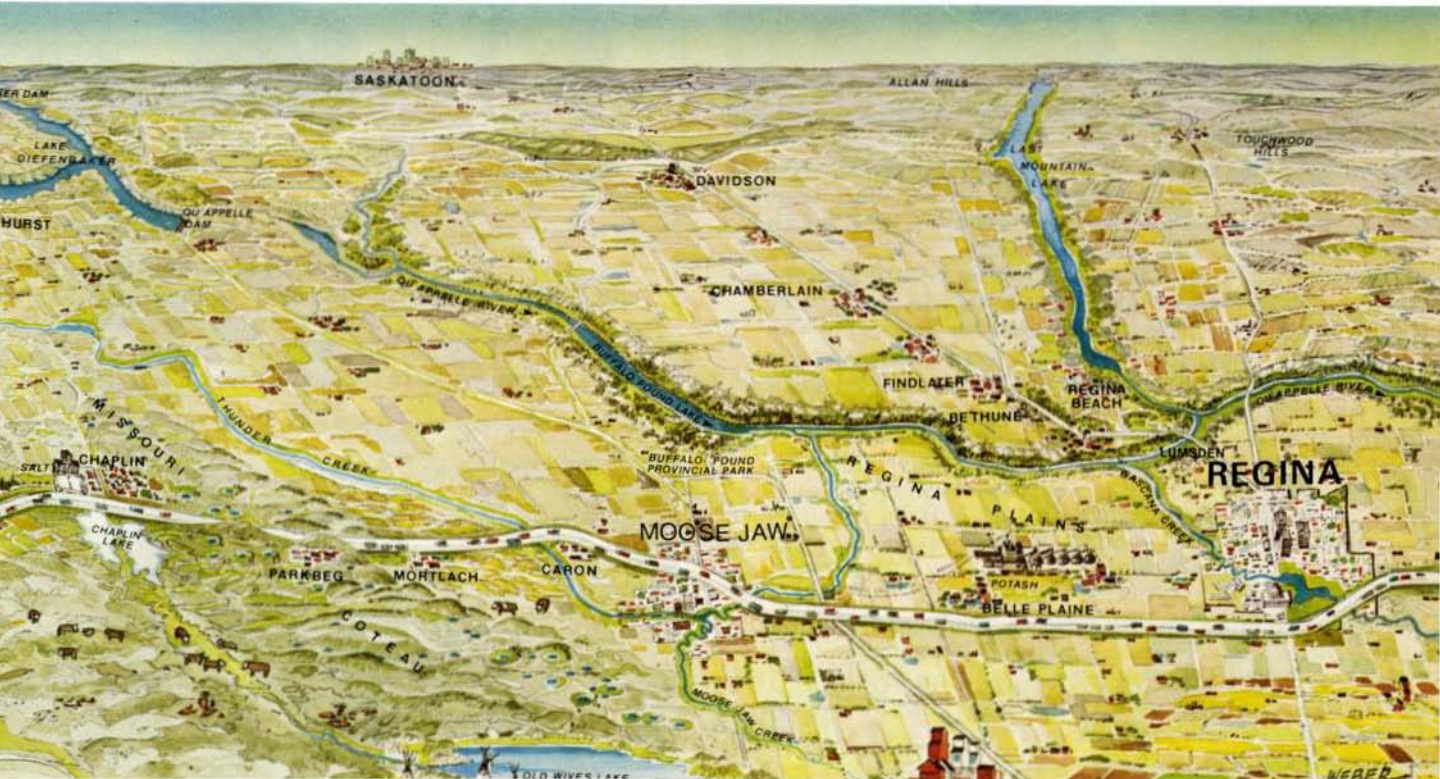
39.5 miles (63.6 km) Fort Walsh to TCH

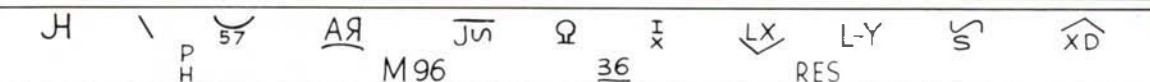
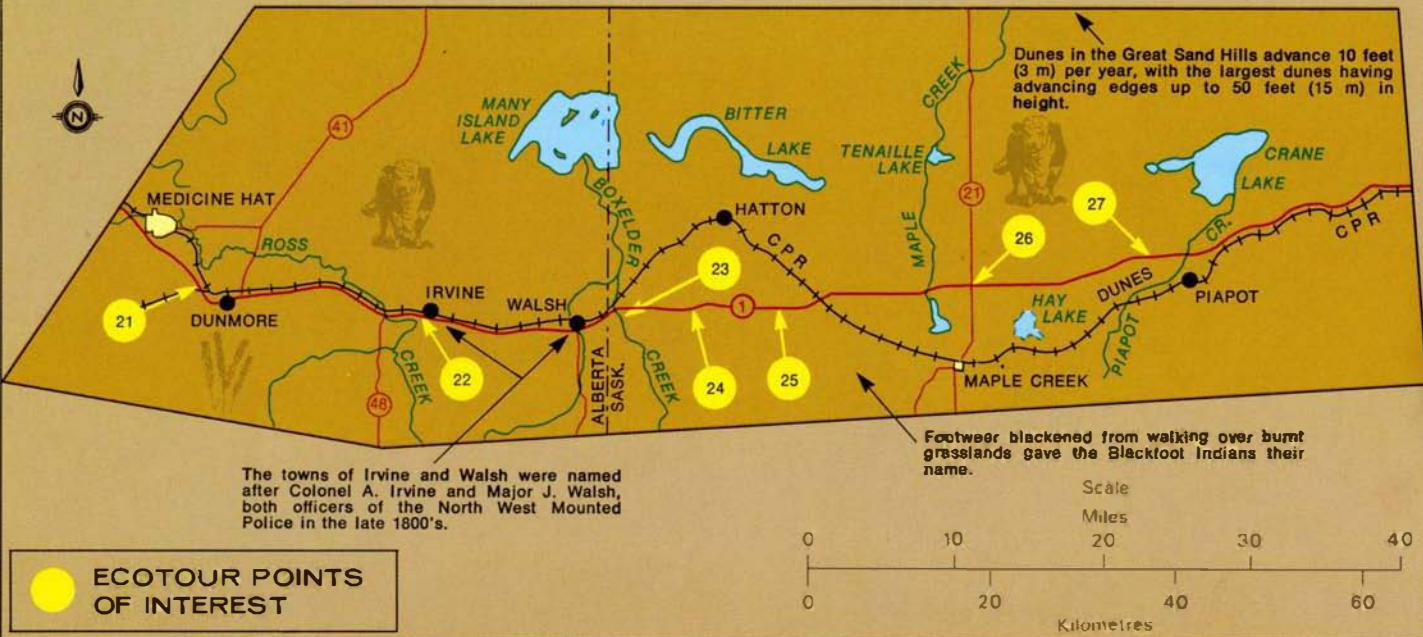






EAST —





- Branding irons
- To the Indian, the bison was a walking delicatessen and hardware store. Every part of the bison was used. Delicacies such as liver and kidney were eaten immediately, while meat was dried and smoked and later mixed with berries and fat to make pemmican. Hides were used to make teepees and clothing, bones were fashioned into cups and spoons, and the hair was woven into rope. Before the horse, Indians hunted bison on foot. Introduction of the horse encouraged use of the "buffalo jump," a cliff over which bison were stampeded to their death.
- Before 1870, this area was a battlefield between the Plains Cree and Blackfoot. With the passing of Indian battles and the bison, and the signing of the last Indian treaty, the stage was set for the entry of "cattle barons" from England and the United States who established vast ranches along the CPR and south to the American border.
- Early ranchers obtained all the necessities of ranch life—food, water, grass, wood, and shelter—from the north slopes of the Cypress Hills. They depended upon warm chinook winds to melt the snow, but occasionally these chinooks failed: the severe winter of 1906-07 ended the era of raising cattle year-round on the open range. By 1925, most of the old-style ranchers had been replaced by "stock growers" with a winter feeding program. The drought of the 1930's demonstrated that in this area farming based on livestock and forage was safer than farming based solely upon grain.
- Hereford
- Bison
- 5.0 miles (8.0 km) from TCH and Highway 3
21. The original narrow-gauge track under this bridge was once owned by the North West Coal and Navigation Co a company begun in 1883 to provide coal for CPR steam engines. Initially the coal had been hauled from Coal Banks (Lethbridge) to Medicine Hat using steamboats.
- 16.7 miles (26.9 km)
22. At Irvine Centennial Park the riverside vegetation is plain cottonwood, Manitoba maple, red osier dogwood, willow, and buffalo berry. These trees and shrubs, which draw moisture from the creek, contrast with the prickly pear cactus, spear grass, and blue grama grass on the hillsides. Abundant sagebrush in this valley indicates overgrazing. Eroded hillsides along Ross Creek can be seen from the top of the hill south of the Irvine Cemetery. Also on this hill are several stone teepee rings from a former Indian encampment.
- 13.8 miles (22.2 km)

# Blackfoot and cattle barons

## Medicine Hat—Piapot



Teepee ring with fire place (22)

3. Sagebrush was sacred to the Blackfoot; in various ceremonies they tied it to articles sacrificed to the sun. Indians made perfumes from sweet grass, wolf willow, and sagebrush.

4.6 miles (7.4 km)

4. Sagebrush was the first large perennial plant to invade this abandoned roadway; eventually native grasses will occupy the old road surface. This illustrates how man-made habitats on the prairies can return to near-natural conditions in about 20 years.

6.1 miles (9.8 km)



Chief Piapot



Sagebrush (23)



25. "Alkali sloughs" contain natural salts derived from underground sources. These salts form a white surface layer as the water obtained from winter snows evaporates in the heat of summer. The salt is blown onto nearby grass where it is eaten by cattle, reducing the need for ranchers to provide salt licks. The distinctive red band around some of these sloughs is from glasswort, one of the world's most salt-tolerant plants. Its succulent stems have a glassy appearance and crunch under the feet as if one were walking on crystal. Glasswort is used to add a salty tang to tossed salads.

12.6 miles (20.3 km)



Alkali slough

(25)



Great Sand Hills

(27)

26. The Neekineet Indian Reserve is one of only three located on the Canadian prairies, even though the grasslands were at one time the traditional summer home of a number of tribes. Indians on this reserve are descendants of Sitting Bull's Sioux who came from Montana in 1876 after defeating General George Custer, and of Big Bear's Plains Cree from the Lloydminster area who participated in the Riel Rebellion of 1885.

12.3 miles (19.8 km)

27. The Great Sand Hills were formed from beach deposits and river deltas of a former glacial lake. Native animals occurring here are the pocket mouse, kangaroo rat, white-tailed jack rabbit, coyote, mule deer, pronghorn antelope, and sharp-tailed grouse. Aspens, poplars, birches, saskatoons, chokecherries, wolf willow, and wild rose are the main woody plants. Only a few isolated dunes can be seen near the highway between Maple Creek and Swift Current.

4.4 miles (7.1 km)



## ECOTOUR POINTS OF INTEREST

Saskatoon berries were important in the diets of Indians and settlers and are still a prairie favourite today.

The pronghorn is recognized in place names both in the village of Antelope on the CPR mainline and in the town of Cabri about 35 miles (56 km) northwest. Cabri comes from the Indian word for the pronghorn.

Gull Lake was named in 1879 by John Macoun who was impressed by the number of gulls. Today this lake is dry.

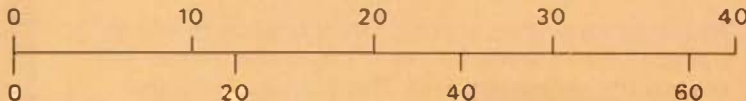
Saskatchewan's first sit-in protest occurred in 1882 when Chief Piapot placed his teepee in the path of the CPR construction crews not far from the village that today bears his name.

From 1888 to 1921 the '76 Ranch was the largest cattle enterprise in Canada.

Nature trails, waterfowl, and native grasslands are featured at the Canadian Wildlife Service's Prairie Wildlife Interpretation Centre near Goose Lake.

Scale

Miles



Kilometres

Homesteaders in 1890 started with 160 acres (65 ha) with the option to purchase another 160. The drought of the 1930's proved that not even 320 acres (130 ha) of land could support a farm family, and many people thought that Palliser's prediction was correct after all. In 1937, the worst of the drought years, Saskatchewan's wheat yield averaged only 2.7 bushels per acre (180 kg/ha) compared to a long-term average of about 15 (1000 kg). Beside the hazards of drought and wind erosion, there were hail, frost, "hoppers," and the gopher. When the gopher was recognized as a crop destroyer, competitions to kill the most gophers were sponsored among school children with the aid of inscribed medals and, for the champion tail-collector, a gold watch.

Novel uses of existing resources have long been part of the lifestyle of farmers in this area. Prairie sod was used by some of the first settlers to build homes, while dried bison dung was used as fuel to heat them. Similarly, bison bones that lay scattered over the prairies after the slaughter of the 1870's were used to make charcoal and fertilizer. In the "Dirty Thirties" abandoned cars were converted to horse-drawn vehicles and called "Bennett buggies" in mockery of the then prime minister, R. B. Bennett. When dry, Russian thistle plants were sometimes

trimmed in the proper shape for use as the "tree" for the country-school Christmas concert. Even today, some resources find a second use. Crossarms of abandoned telephone poles make excellent corral rails, and abandoned machinery and cars are being recycled by a steel mill in Regina.

Modern farming methods have improved soil moisture conditions and soil stability. In dry years, however, there is still some wind erosion. Dust storms on the prairies are an ever-present reminder that dryland farming is a major change from the original grasslands that held the soil in place.



Sod house



Bison bone





# Homesteads and the dirty thirties

## Piapot—Swift Current

8. Crane Lake and Bigstick Lake were once major breeding sites for waterfowl, shore birds, gulls, and terns. These lakes, described in 1905 as "the crowning glory of the whole region", have gradually dried up since the drought of the 1930's. An archeological site east of Crane Lake provides evidence of man's early (1500 B.C.) occupation of this area.

12.4 miles (20.0 km)

9. Various kinds of fencing have been developed along railways and major roads to prevent snow from blocking transportation routes. Wooden fencing or tree plantings are common along the CPR.

8.6 miles (13.8 km)

10. The Trans-Canada Highway has influenced the fate of many towns that the CPR spaced so regularly on the map. Introduction of this highway 20 years ago eliminated the need for stores and other services at 10-mile (16-km) intervals. In many towns only the grain elevator remains as a viable business.

5.4 miles (8.7 km)



Strip farming (after harvest)

(32)



Abandoned farm house

(32)

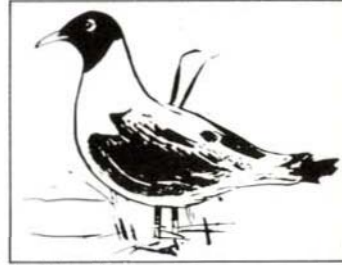


Greasewood

(34)



Gopher



Franklin gull

31. A ravine located on the conspicuous ridge visible several miles south of the highway is one site where Indians on foot hunted bison by the impoundment method. This technique involved stampeding the bison down the ravine into a well-camouflaged corral where they were easily contained and slaughtered.

10.9 miles (17.5 km)

32. The story of this area is told by the empty farm buildings. In a more humid climate abandoned buildings and machinery would rot and rust more quickly and be hidden by lush vegetation; but on the dry, exposed prairie they deteriorate slowly and openly. Dryland farming, without the aid of irrigation, is highly developed here. Grain production is achieved by strip farming, summer fallowing in alternate years to conserve moisture, using machinery that leaves stubble on the surface to reduce soil erosion, and sowing drought-resistant crop varieties.

7.6 miles (12.2 km)

33. North of the highway clumps of small trees mark the location of a small sand dune area. None of the tree species growing here produce wood in the commercial sense, but maps printed in 1914 showed this area as the "Seward Forest Reserve." Perhaps the idea was that if the sand hills could not be farmed they could be used to produce lumber.

11.4 miles (18.4 km)





34. In the angle formed by the highway and the railway is an unusual plant, greasewood, whose normal habitat is the semi-desert areas of Utah and Colorado. This dark green shrub, visible as distinct clumps, thrives in alkali areas and is poisonous to livestock.

6.0 miles (9.7 km)



## ECOTOUR POINTS OF INTEREST

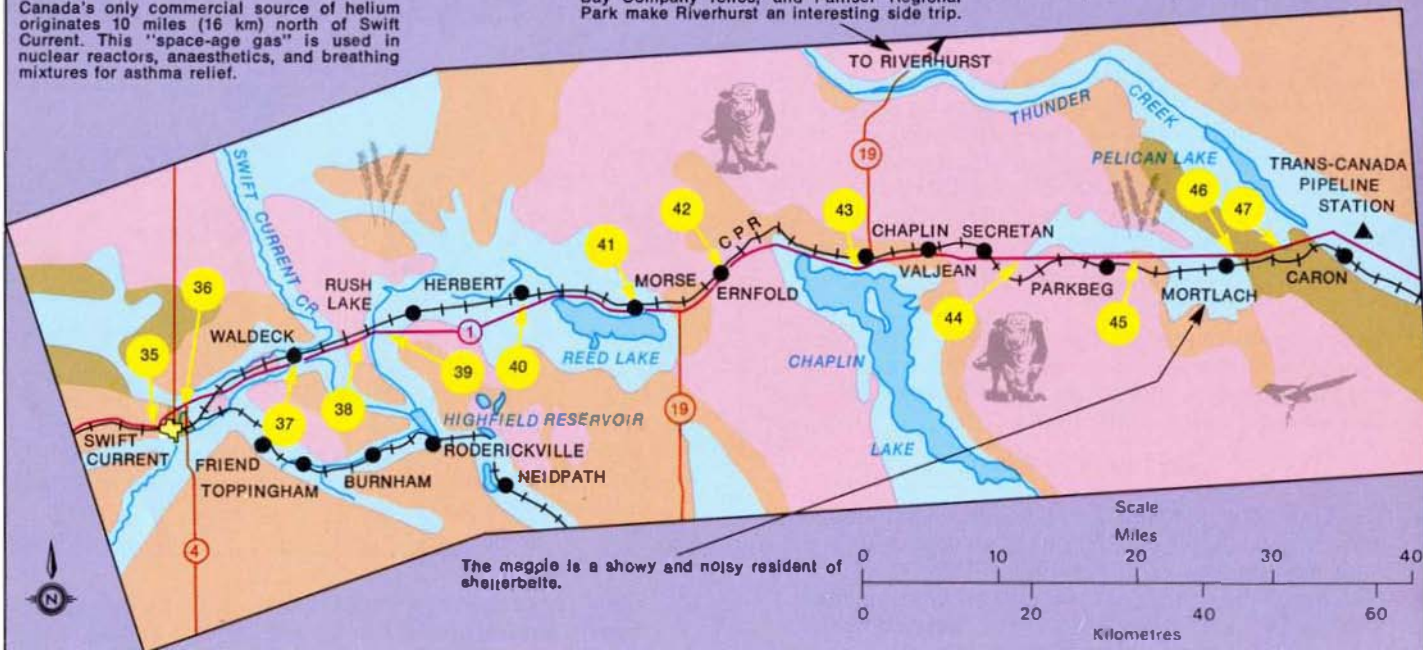
### TOPOGRAPHY

-  Hummocky (end and dead-ice moraines, kames)
-  Gently rolling (ground moraine, gravel outwash)
-  Flat (glacial lake basins, meltwater channels)
-  Dunes and other sandy areas (glacial beaches, outwash)

Canada's only commercial source of helium originates 10 miles (16 km) north of Swift Current. This "space-age gas" is used in nuclear reactors, anaesthetics, and breathing mixtures for asthma relief.

A ferry, a museum of Indian and Hudson's Bay Company relics, and Palliser Regional Park make Riverhurst an interesting side trip.

Gardiner Dam on the South Saskatchewan River has created Lake Diefenbaker, which is 140 miles (225 km) long and has nearly 500 miles (800 km) of shoreline. The lake is used for recreation and will eventually irrigate about 200,000 acres (80 000 ha).



The meggie is a showy and noisy resident of shefferbelte.

No other stretch of the highway between Calgary and Regina has an ice-age heritage as variable, interesting, and easily recognizable as that between Swift Current and Caron. It took approximately 9000 years for this 90-mile (145-km) stretch of land to become free of ice when the last continental glacier receded to the northeast. Around 20,000 years ago a glacial lake formed along the ice front at Swift Current. The ice left a ridge between the present towns of Waldeck and Rush Lake about 16,000 years ago and formed the hills at Ernfold about 13,000 years ago. West of Caron, beaches of glacial Lake Regina were laid down 11,000 years ago and the lake itself drained about 1,000 years later. Anyone waiting around at that time for new homestead land would have needed patience indeed!

Homesteaders didn't know the glacial origin of their particular 160 acres (65 ha), but they soon learned whether their land was too sandy, hilly, or stony to farm. Had there been the benefit of today's soil maps at the time homestead lands were selected, there would have been fewer dreams broken on lands that should never have been turned to the plow. Today we use the knowledge of our ice-age heritage to plan the wise use of land and to help

locate sand, gravel, and "buried valleys" that may contain groundwater.

35. Most of the city of Swift Current lies on the bed of a former glacial lake. The "North Hill" over which the highway passes is part of a sandy plain formed at the edge of this lake.

2.2 miles (3.5 km)

36. Just east of Highway No. 4 South, the Trans-Canada Highway passes through a large valley that approaches the city from the northwest. This valley was a drainage (meltwater) channel for a large glacial lake that once existed on the northern edge of the Great Sand Hills. The lake drained south (against the present direction of Swift Current Creek) into the Frenchman River, which is part of the Missouri-Mississippi drainage system.

8.3 miles (13.4 km)

37. Waldeck means "wooded corner" and was named by original German homesteaders. Presumably willows along Swift Current Creek, in sharp contrast to the treeless prairie, inspired the name.

5.0 miles (8.0 km)

# Ice-age heritage

## Swift Current—Caron



Glacial lake basin, Rush Lake

(39)

38. The upland that the highway crosses between Waldeck and Rush Lake is a large ridge (or end moraine) formed when the ice front was located at this point for a long time. This hilly, stony moraine is less suitable for farming than the flat, stone-free glacial lake basins.

2.1 miles (3.4 km)

39. Glacial lakes that formed on the south edge of a melting ice sheet at Waldeck and Rush Lake drained through meltwater channels that run southeast towards Neidpath. These valleys provide ready-made transportation routes. A former railway from Swift Current to Neidpath, passing through the stations of Friend, Toppingham, Burnham, and Roderickville, travelled for its entire length in valleys cut by waters that drained former glacial lakes.

10.7 miles (17.2km)



Meltwater channel, Swift Current

(36)

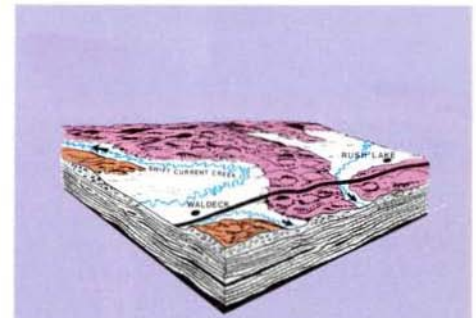
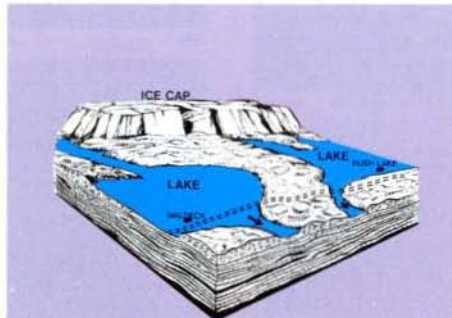
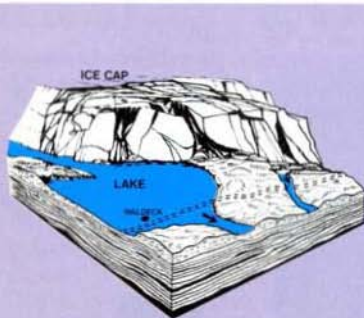
40. Ten thousand years ago this area was occupied by a parkland of pine, spruce, birch, willow, and aspen. As the continental glacier receded farther north the climate became drier and warmer, and the trees were eventually replaced by grassland. Parklands such as once existed here are now found 200 miles (320 km) north.

8.4 miles (13.5 km)

41. Reed Lake is located in the former glacial Lake Herbert Basin, which at one time extended west to the town of Rush Lake. The absence of freshwater lakes in this area when early settlers arrived made underground sources of water very important.

Extending from Swift Current to Morse is an "underground river" buried beneath glacial deposits. At one time the towns of Herbert and Morse drew their water from this underground source; today fresh water is obtained from surface water reservoirs and farm dugouts.

7.6 miles (12.2 km)

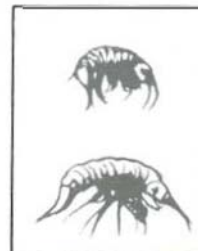


42. Spruce trees along the railroad show how small changes in elevation on rolling land influence tree growth. The tallest trees grow in the wetter low spots and the shortest on the drier hilltops. This example demonstrates that man's ability to grow things is greatest when he works with nature by matching his crops with the habitats that suit them best.

10.7 miles (17.2 km)



Sodium sulphate plant, Chaplin



Freshwater shrimp (43)

43. Lakes in closed basins with no stream outlets lose their water by evaporation, which over a long period of time can result in a concentration of natural salts. Such is the case at Chaplin Lake, where accumulations of sodium sulphate are currently being extracted from settling ponds for use as a pulping agent and as a supplement to animal feed. Chaplin Lake is also the habitat of tiny brine shrimp used in pet foods and fish hatcheries. Up to 10,000 pounds (4500 kg) of shrimp per day have been netted for export to New York and Montreal.

11.4 miles (18.4 km)

47. The Besant Trans-Canada campground is a good place to observe how sand is stabilized naturally by various native grasses and shrubs, especially wolf willow. Trembling aspen is relatively common, while plains cottonwood occurs only where the water table is within 5 feet (2 m) of the surface. A permanent stream flowing through the park and fed by springs rising in the adjacent 20- to 30-square mile (50- to 80-km<sup>2</sup>) sand dune area was used extensively by prehistoric peoples.

13.3 miles (21.4 km)

44. Between Valjean and Parkbeg the highway passes over an area of "knob and kettle" topography (known as dead-ice moraine) which formed when the glacier left large blocks of ice buried in the earth. As the ice blocks melted, their location was marked by a large dimple or "kettle" on the ground surface. In wet years these kettles contain water and are important nesting areas for ducks. As a result of this extra moisture supply, trembling aspen grow on the fringes of some kettles.

9.4 miles (15.1 km)



Bird's-eye view, knob and kettle topography (F. Lahrman)

45. Three miles (5 km) east of Parkbeg the highway descends the Missouri Coteau onto a gently rolling area overlain with clays and silts deposited during the early stages of former glacial Lake Regina. Sand dunes east of Mortlach are from a delta that formed where Thunder Creek entered glacial Lake Regina about 11,000 years ago.

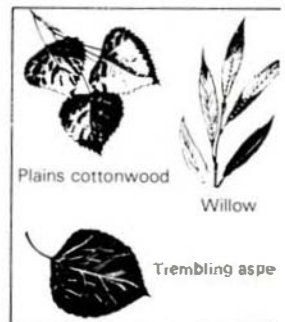
7.1 miles (11.4 km)

46. Sandy soils in this area were severely eroded by wind in the 1930's and this plantation was an attempt to stabilize the soil. Of the 5 coniferous and 27 deciduous trees planted around 1950, the poplars, Scots and lodgepole pines, and Manchurian elm have performed best.

3.4 miles (5.5 km)



Wolf willow (47)



Plains cottonwood Willow Trembling aspen (47)

# The bread basket

## Caron—Regina



Combining wheat, Regina Plain (Saskatchewan Government photo)

The most impressive feature of the Regina Plain is the total conversion of the original landscape into farm fields. Today none of the native grassland remains. Land management focuses on one main use of land—the production of wheat. In a world with an increasing scarcity of food, even more intensive use of this land for protein production can be predicted. Fortunately for the hungry of the world, Palliser's conclusions were not correct for the lake-bottom lands of glacial Lake Regina.

In much of the world, wheat appears in some form in almost every meal. Aside from its uses in breakfast cereals, bread, and other baked goods, wheat is mixed into a paste and forced through machines to make macaroni and spaghetti. No. 1 Canada Western Amber Durum is said to be the world's best wheat for making pasta. Wheat also yields alcohol for industrial use and strawboard for box construction.

There is only spring wheat here, which is planted in the spring and harvested about 90 days later. In milder climates, winter wheat is planted in the fall and harvested in early summer.

48. On a clear day as you look south and southwest over the town of Boharm the eastern edge of the Missouri Coteau stands out in sharp contrast to the flat lake basin.

2.0 miles (3.2 km)

49. The huge barns erected at the turn of the century provide a distinctive architectural style to the Regina Plain. These barns found their greatest use when large numbers of horses were required for farming. Now that the horse is gone they are used mainly for grain and machine storage.

5.1 miles (8.2 km)

50. Most of Canada's inland cities are located on rivers that served as the nation's first highways. Moose Jaw is different because its location was determined by the mode of transportation that replaced river travel—the railroad. The location of the City of Moose Jaw on tiny Moose Jaw Creek, due to the need for water to run the steam engines, is just one more example of the role of the CPR in shaping western Canada's history.

4.8 miles (7.7 km)



Missouri Coteau and Regina Plain

(48)



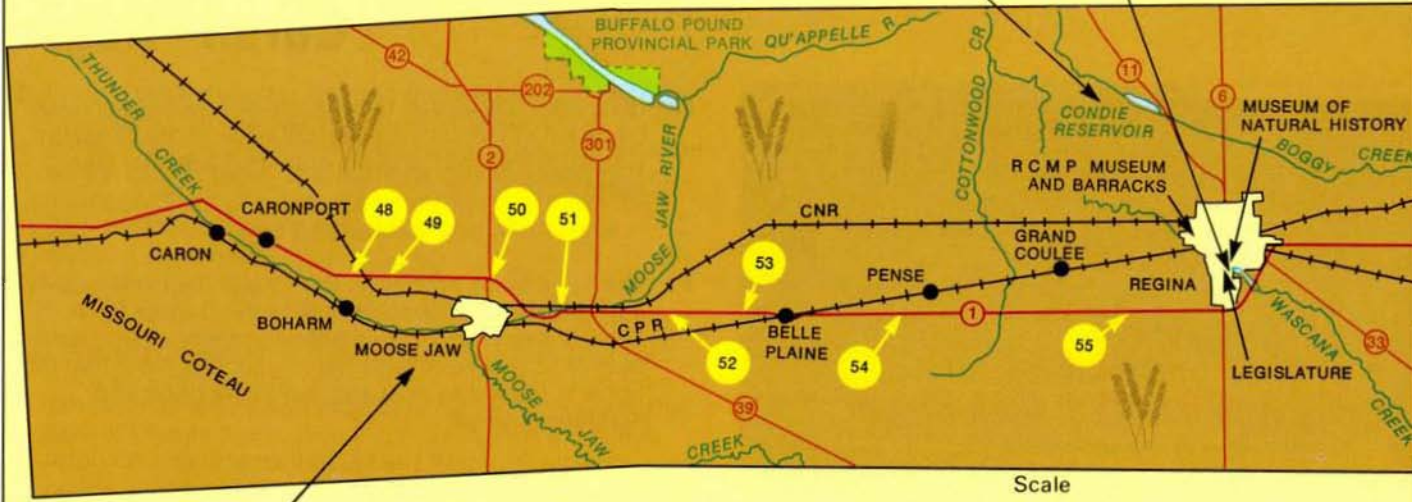


## ECOTOUR POINTS OF INTEREST

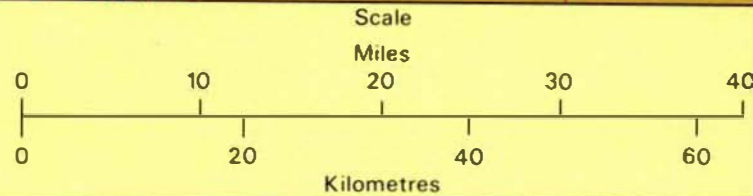
In 1883 Wascana Creek was dammed to form Wascana Lake. Warm water from a city power plant and a feeding program keep many waterfowl here all winter.



Condie Nature Refuge located along Boggy Creek includes a small museum, prairie dog area, and Indian Village.



There are two versions of the origin of Moose Jew's name. One says that a traveller repaired his Red River cart with a moose's jaw bone near here. A more generally accepted version is that Indians named the place from the Jewlike route of the creek.



51. Large deposits—up to 100 feet (30 m) deep—of fine-textured soils were laid down on the bottom of former glacial Lake Regina. When the lake drained, Moose Jaw Creek cut into these deposits and exposed a mixture of earth, stones, and gravel (glacial till) which had been deposited prior to the formation of the lake.

5.7 miles (9.2 km)

52. Trees planted on both sides of the highway date from Canada's centenary in 1967. There are also numerous dugouts beside the road. These were created as "borrow pits" to provide road-building material, but they serve other uses such as water storage areas for individual farms and habitat for waterfowl.

5.1 miles (8.2 km)

53. Long ago man discovered that wood ashes promoted plant growth. The first man-made fertilizer was produced by burning wood in iron pots, adding lime, leaching, then evaporating until dry. The remaining "pot ashes" gave the name to potash. Today potash is still important, along with nitrogen and phosphorus, as one of the three major plant foods. The mine at Belle Plaine obtains naturally occurring potash from former ocean beds 5200 feet (1600 m) below the surface.

Modern potash mines are characterized by large dome-shaped bins that serve the same storage purpose as the grain elevator.

7.9 miles (12.7 km)



54. Land-use patterns on these lake-bottom lands differ markedly from those west of the Missouri Coteau. There is little mixed farming here and few fences, fields of oats or barley, hay meadows, or bales of hay. The landscape is dominated instead by large wheat and summer-fallow fields, generally one-quarter square mile (65 ha) in size.

12.1 miles (19.5 km)



washing wheat, Regina Plain (Saskatchewan Government photo)



City of Regina (C. Kirby)

(55)

55. The City of Regina, which to many travellers may appear as an oasis on this vast prairie landscape, is a totally man-made habitat, very different from the natural, roadside, and farm habitats observed between Calgary and Regina. From a humble prairie beginning as a pile of bison bones left by Indian hunters, Pile of Bones Creek became a whistle stop on the CPR and was later named Regina after Queen Victoria.

Unlike the Indians who lived off the land and the early settlers who were limited to what their farms could produce, modern man has devised technological means of satisfying his needs. Water is piped in from Buffalo Pound Lake 32 miles (52 km) away, forest products for shelter hauled in from British Columbia and northern Saskatchewan, gas and oil obtained from Alberta to provide warmth, food imported from all over the world, and non-native trees and shrubs introduced and reservoirs created to satisfy aesthetic and recreational needs. Although the large concrete towers, residential areas, asphalt streets, and plantings have resulted in an amenable microclimate, the city and its people are still subject, as are all the habitats seen along this portion of the Trans-Canada Highway, to the overriding continental climate (warm summers, cold winters) and major weather events such as tornadoes (1912), floods (as recent as 1975), and blizzards.

5.8 miles (9.3 km) to TCH and Highway 6



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## A word about ecotours

Ecotours have been devised by the Canadian Forestry Service to help you, as a traveller, understand the forces that have shaped the landscape you see—forces ranging from earthquakes to earthworms, from west winds to white pines. This ecological interpretation includes features of human as well as natural history. The route covered by Ecotours is divided into major landscape types, or Ecozones, with a map for each showing the location of interesting ecological features which are illustrated and described in the text. While most ecological features can be seen without stopping, a stop is suggested for some points of interest. Maximum value from this Ecotour will be derived by keeping a record of the mileage and by reading about each Ecozone and its points of interest in advance.

### Credits

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The volume and multiplicity of forest products has earned Canada a place of prominence among the forest nations of the world. But now, with a dawning comprehension of the forest's role in the great ecological complex, Canadians begin to perceive the forest's broader value as a stabilizer of desired natural patterns and as a retreat for the relaxation and well-being of people living in crowded cities.

The Canadian Forestry Service of the Department of Environment is intimately concerned with the forest environment and forest industries. Its objective is to promote the most efficient management and use of Canada's forest resources compatible with environmental concerns by:

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- *disseminating information and providing technical services to provincial governments, forest industries, and other agencies*
- *preparing and distributing information to the general public.*

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