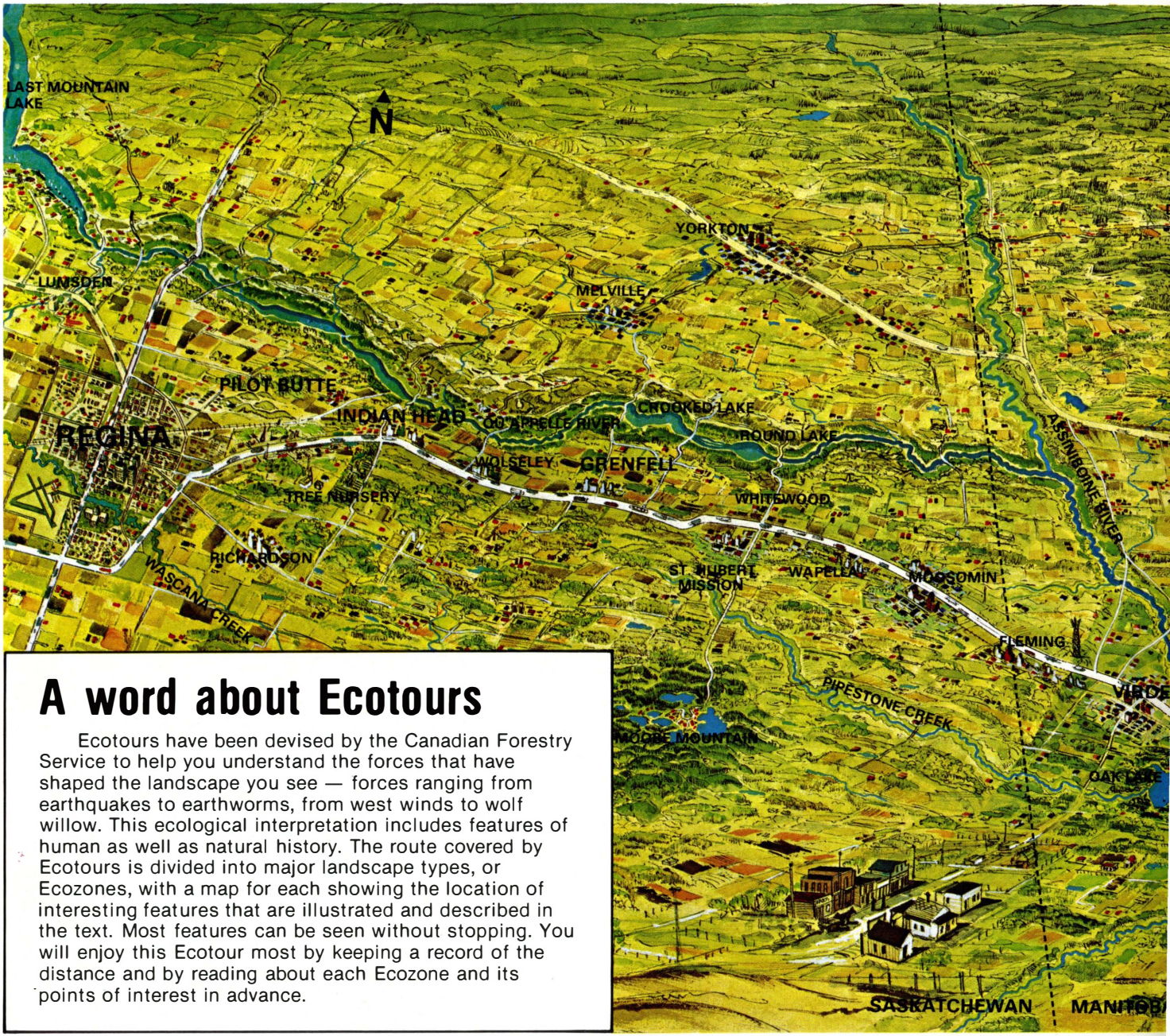
ECOTOUR®

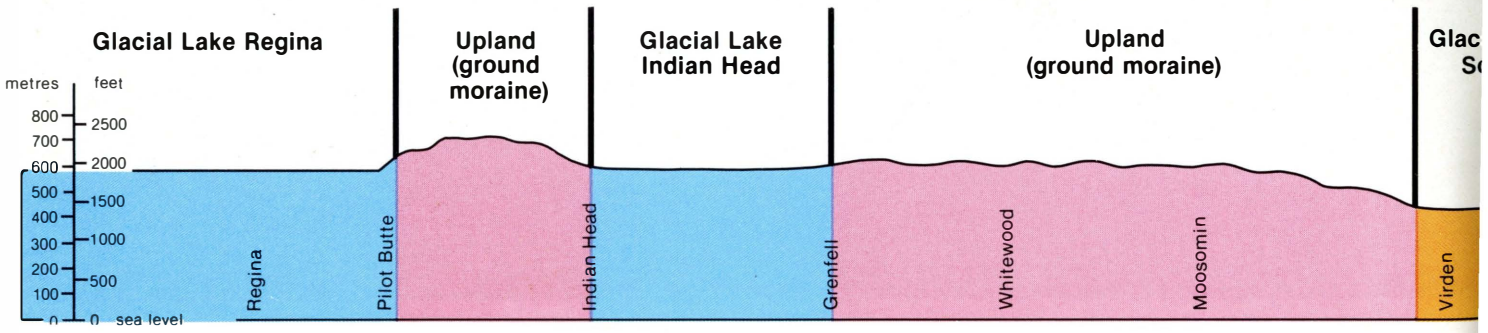
Of the Trans-Canada Highway

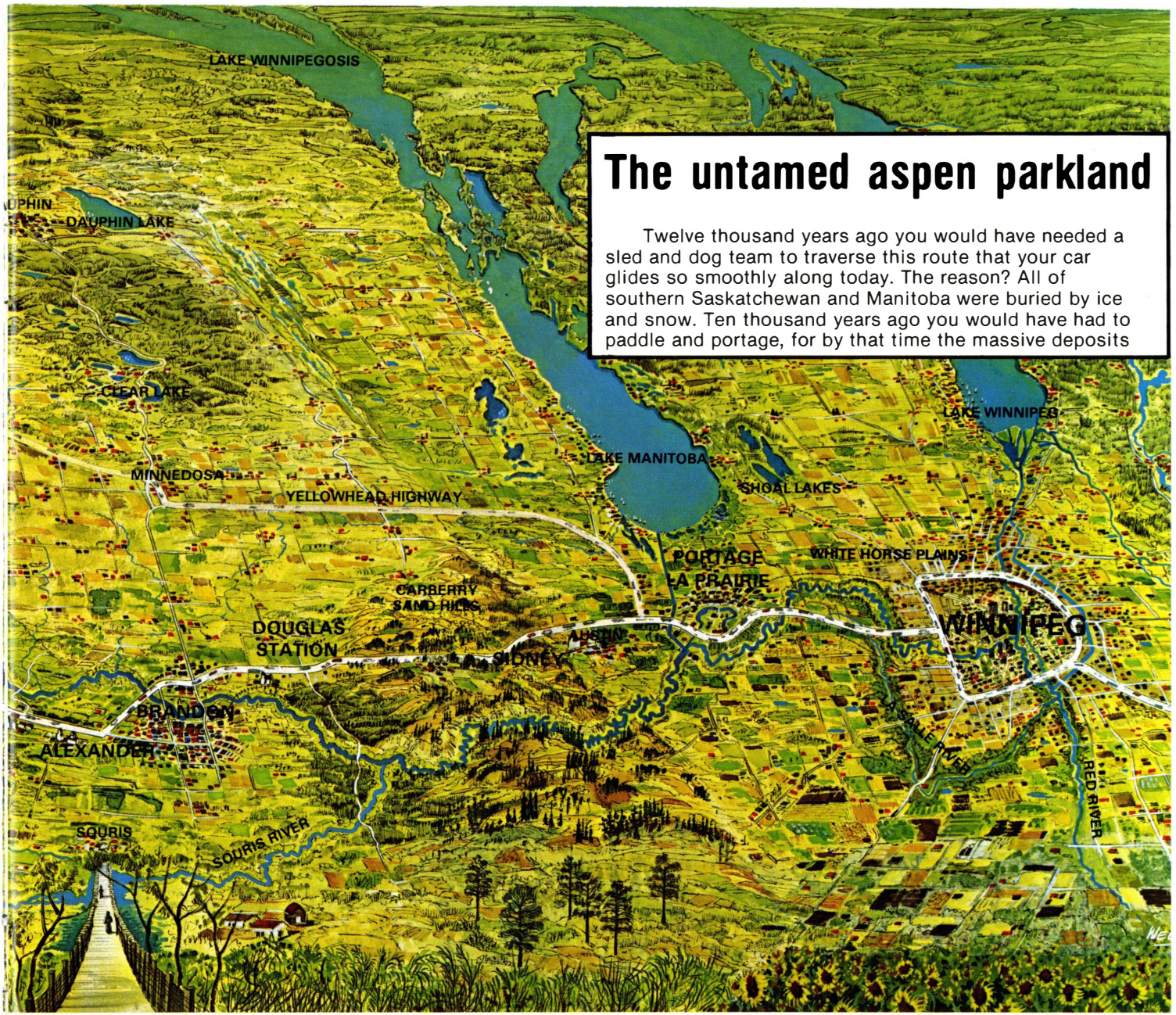
Regina - Winnipeg



A word about Ecotours

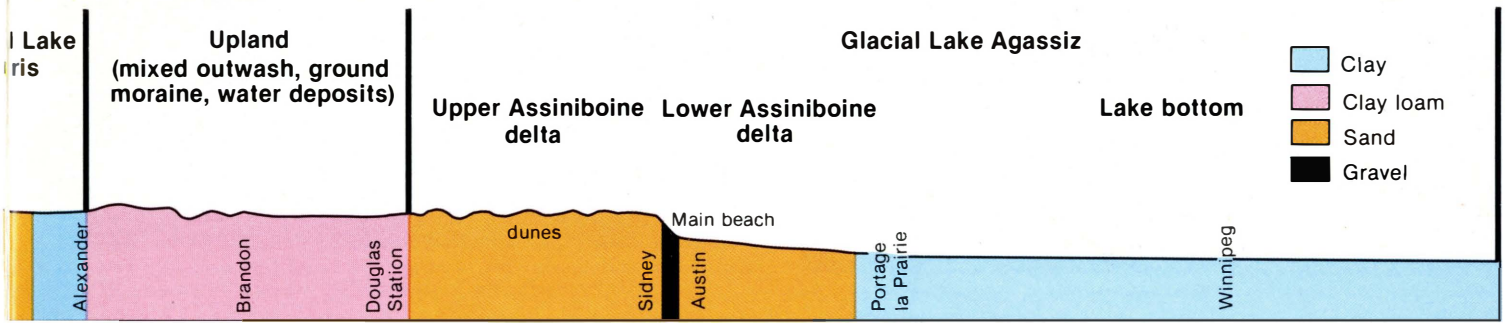
Ecotours have been devised by the Canadian Forestry Service to help you understand the forces that have shaped the landscape you see — forces ranging from earthquakes to earthworms, from west winds to wolf willow. This ecological interpretation includes features of human as well as natural history. The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





The untamed aspen parkland

Twelve thousand years ago you would have needed a sled and dog team to traverse this route that your car glides so smoothly along today. The reason? All of southern Saskatchewan and Manitoba were buried by ice and snow. Ten thousand years ago you would have had to paddle and portage, for by that time the massive deposits



of ice had melted to form glacial Lakes Regina, Indian Head, Souris, and Agassiz. As you paddled, silently the waters beneath you would be dropping their rich load of clay and silt on the lake bottoms that would one day be productive fields, such as the Regina Plain. Today, where lakes once lapped there are fertile plains, where glaciers scraped and gouged uplands there is rough, rolling aspen parkland, and where eroding waters flowed into lakes, sandy deltas were formed and later sculpted by wind into dunes. This ecotour route may, in fact, be generally characterized as a chain of flat, fertile plains alternating with less fertile rolling parkland and unfertile sandy dunes.

While the plains are some of the most agriculturally productive land in Canada, the dunes and portions of the parkland have resisted nearly unscathed all attempts to domesticate them. Because homesteaders didn't have the advantage of geological knowledge when they chose a quarter section of land from their Red River carts, in many cases their mark upon the land was short-lived. Tenacious aspen, poor crops on thin, stony, or saline soils, flooding, and the drought of the 1930's brought disillusionment and mortgage foreclosure to many. Even today the ever-present aspen bluffs hold their ground against larger and larger farm machinery, and the capricious weather can spell boom or bust any year.

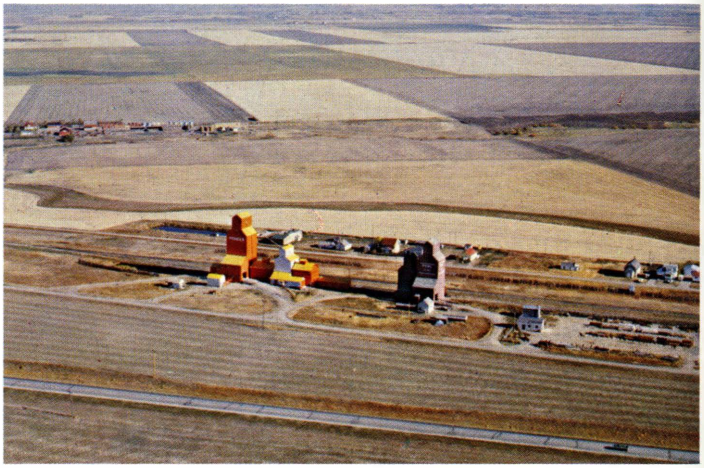
As you travel you will see some land-use practices well adapted to the terrain, others in defiance of it. The defiance can only be short-lived, however, particularly in the aspen parkland that constitutes 80% of the terrain

The prairie wood lily dots the aspen parkland in the spring

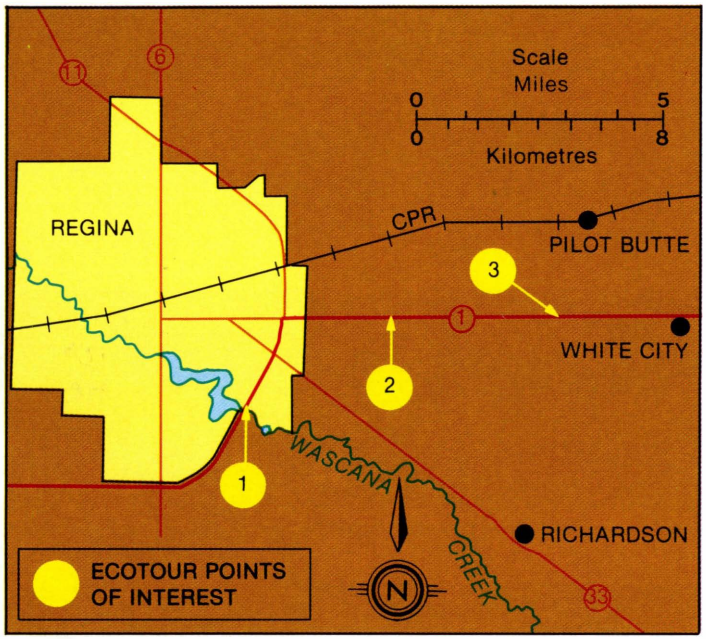
Sharp-tailed grouse, common denizen of the parkland

along this route. Aspen can never be totally eradicated. Indeed, it is capable of claiming back its own the moment a farmer relaxes his vigilance. It may well be, in the face of rising energy costs, that the best use of parts of the aspen parkland will be to leave them untamed. In its natural state the parkland harbors wildlife, stabilizes the soil, provides opportunities for hunting, berry picking, and other recreational pastimes, and diverts the traveler with spring wild flowers and autumn colors. It may be wiser to preserve the land for these values rather than try to wrest wheat or beef from every acre. Along this route you'll be able to see evidence past and present of the continuing see-saw struggle between settlement and the stubborn hillocks, marginal soils, sloughs, and aspen groves that make the aspen parkland a region unique in North America.

Aspen, native grass, and introduced wheat exist side by side in the parkland



Grain elevators at Richardson, Sask. — the only vertical landmarks on the Regina Plain (2)



An inland sea

Regina-Pilot Butte

After the draining of glacial Lake Regina several thousand years ago, this area was a vast, waving sea of grass where the only disturbances were periodic prairie fires and droughts. In the summer, Plains Indians harvested the bison that roamed this endless prairie; in the winter they sought shelter in the Qu'Appelle Valley and other wooded areas. Today, too, the grain harvest is a summer activity, with many farmers seeking the comforts of the city, or perhaps warmer climates, in the winter. The original grasslands were eliminated in the late 1800's and have now been replaced by farm fields and city streets. About 60% of the farmland is in crop at any one time, and 40% in summer-fallow. Of the cropped portion, about 80% is spring wheat; durum wheat and flax are important secondary crops.

Junction of Trans-Canada Highway (TCH) and Highway 6
0 km (0 miles)

4.6 km (2.8 miles)

1. During the 1880's Wascana Creek was dammed to form a peaceful lake. Today the lake is part of Wascana Centre, which contains many of Regina's educational, cultural, and recreational facilities, including the University of Regina, Museum of Natural History, Saskatchewan Legislature and grounds, Centre of the Arts, and picnic and boating facilities. The margins of Wascana Creek are thick with cattails, rushes, and giant reed grass, all typical of deep-water prairie marshes.

6.6 km (4.1 miles)

2. The eastern margin of Regina is advancing into valuable agricultural land as relentlessly as a wave eating away the shore. The grain elevators at Richardson, seen on the skyline 6 km to the southeast, symbolize the vast wheat-producing capability of the fertile Regina Plain. Each acre produces up to 40 bushels of wheat with a protein value of 17%, one of the highest on the Prairies. Establishing commuter communities such as White City on the less fertile till soils east of Regina offers a more reasonable alternative to urban sprawl.

5.3 km (3.3 miles)

3. Here the highway ascends the eastern shoreline of former Lake Regina. To the northwest is an area of sand and gravel hills called kames, or buttes. The town of Pilot Butte is named for a lookout from one of these kames — a view that must once have been reminiscent of the ocean as the vast grasslands to the southwest shimmered beneath the heat waves or winds of a summer's day.

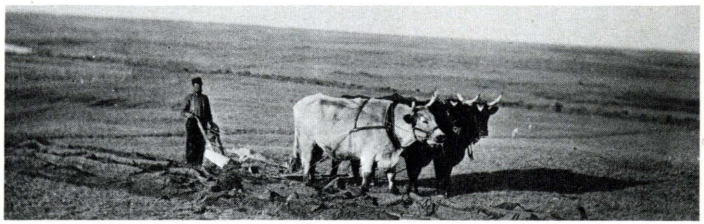
9.8 km (6.1 miles)

Wascana Creek meandering toward Regina (1)

Potholes versus the plow

Pilot Butte-Indian Head

The rolling uplands between Pilot Butte and Indian Head, left behind by retreating glaciers, are not as agriculturally productive as the flat lake-bottom lands around Regina and Indian Head. However, the scattered trees and potholes of this rougher terrain are more hospitable as wildlife habitat. At first the plow was a blessing for waterfowl and upland birds because it created a greater variety of habitats; as well, introduced grain and weeds supplemented the birds' native diet. In 1882 John Macoun, a noted naturalist, reported how geese, ducks, and sharp-tailed grouse had taken to the stubble fields following the fall grain harvest. However, as land clearing progressed to the point where even potholes and other wetlands were destroyed, important waterfowl habitat was lost. On the other hand, the often-glimpsed white-tailed deer, coyote, and skunk have adapted well to the new habitats created by agriculture.

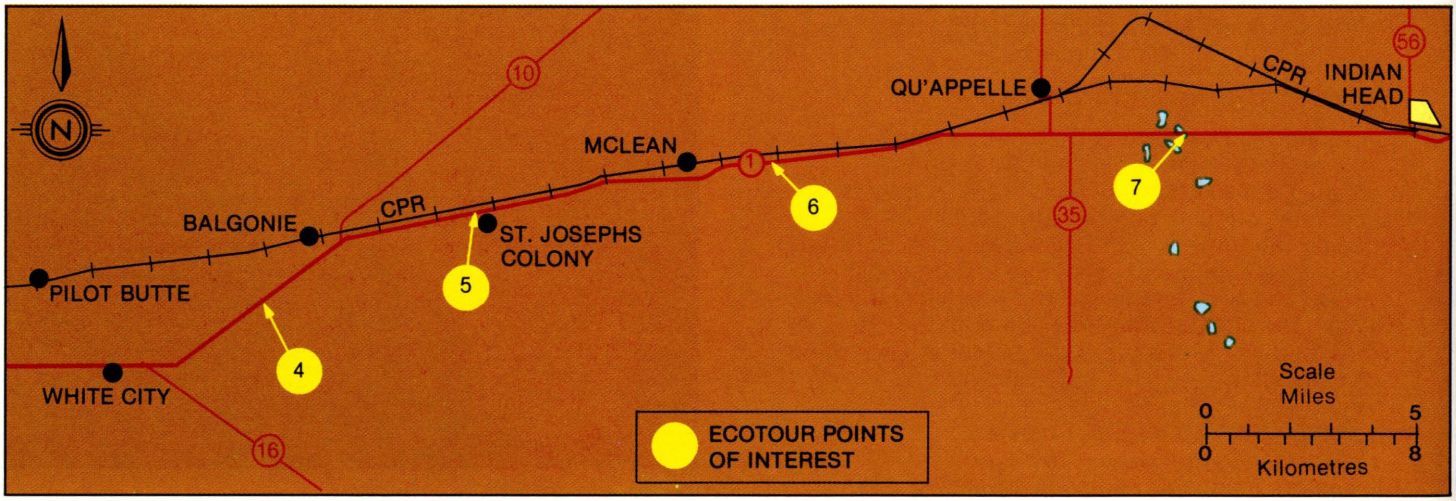


Breaking prairie sod around 1912 (Glenbow-Alberta Institute)

Cattail pond (7)

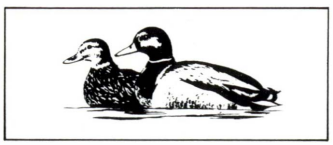
4. Near the Tractor Museum on the north side of the highway, an uncultivated grassland of rough fescue with a few clumps of stunted trembling aspen and wolf willow flashes us back to the way this land looked 100 years ago. The rows of aspen that have sprung up along uncultivated fence lines from here eastward indicate that, without farming or recurring wildfire, this area would be a continuous aspen woodland.

8.8 km (5.4 miles)

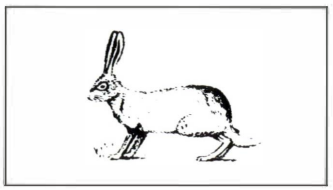


From Crees to combines
Indian Head - Grenfell

Pintails and mallards rising from a wheat field



Mallard ducks (7)



White-tailed jackrabbit (6)

From 5 km west of Indian Head to Grenfell, the highway skirts the southern shore of former Lake Indian Head. On this flat prairie landscape dominated by the sky, it is not surprising that the religious beliefs of the Cree Indians centered on a watchful Sky Father. Spirits from the sky were believed to be involved in inspiring warriors, directing storms, drying up rivers, or altering the path of migrating bison. Because these spirits could be appeased by offerings of human pain, distinguished warriors would lacerate themselves in the great sun dance ceremonies.

This largely nomadic society gleaned a living from native fauna and flora without conspicuously altering the landscape. Early settlers, however, cleared and broke the land, replacing native grasses with imported crops. Their first laborious hand operations were rapidly mechanized, culminating in today's combine, seeder, swather, and air-conditioned tractor.

5. St. Josephs Colony was settled by German Catholics in 1886. Other nearby place names such as Kathrintal Colony and St. Peters Colony are also a reminder of the church's role in the settlement of the Prairies. Around the turn of the century many churches acquired land originally owned by nomadic Métis and resold it to settlers who, as stable parishioners, would support the church.

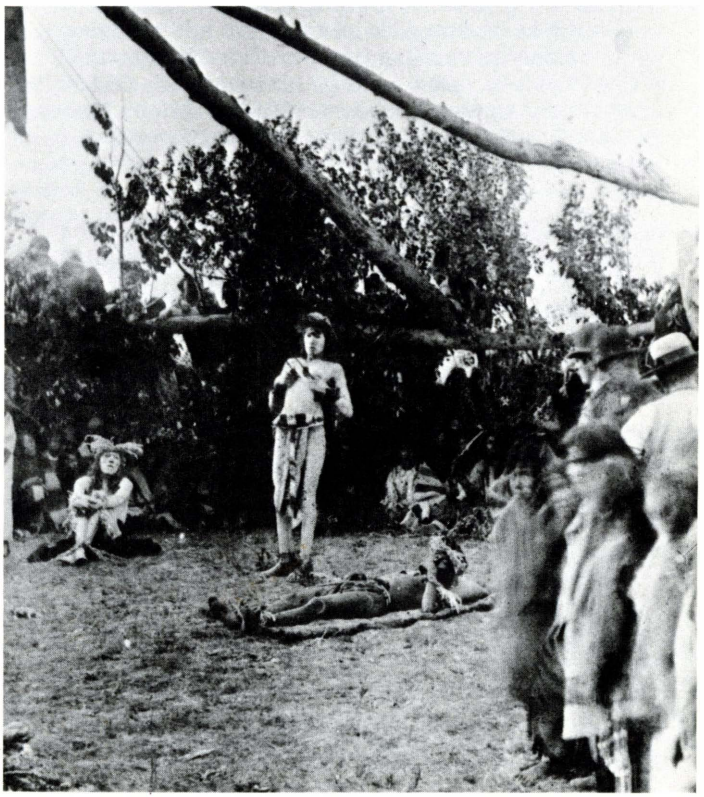
   11.7 km (7.3 miles)

6. The white-tailed jackrabbit, called the "jackass" rabbit by early settlers because of its long legs and ears, is commonly seen at night crossing the highway in the beam of headlights.

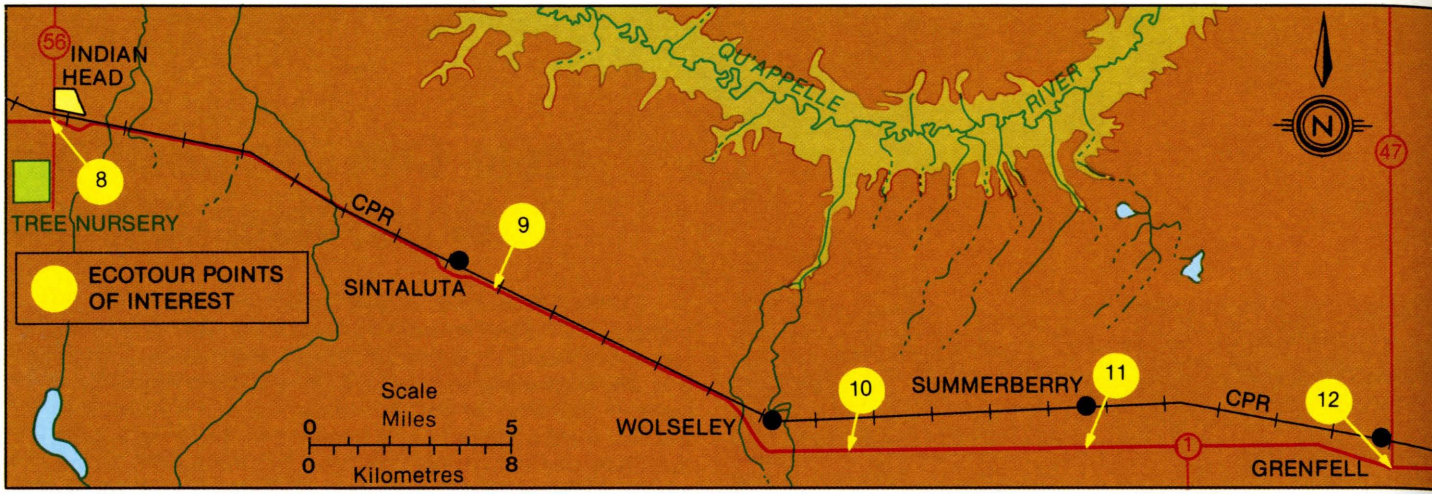
   15.0 km (9.3 miles)

7. A slough is a slough is a slough? Not necessarily. For example, along this part of the highway you can see aspen-fringed sloughs, open-water marshes, cattail ponds, sedge and white-top ponds, and wet meadows that periodically contain water. Common nesting birds in these wetlands include the mallard, pintail, blue-winged and green-winged teals, lesser scaup, and gadwall. The highest quality waterfowl habitats are found around the small, thickly vegetated potholes associated with this hummocky terrain. Larger lakes, such as those in the Qu'Appelle Valley, serve as migration stops.

   8.8 km (5.5 miles)



Blood Indian participating in the self-torture sun dance ceremony, 1887 (Provincial Archives of Alberta)



8. Farmyards and fields here are ringed by shelterbelts of caragana, green ash, Manitoba maple, and Colorado blue spruce from the Indian Head Tree Nursery. Over 400 million nonnative trees and shrubs have been distributed for the protection and beautification of farms since the nursery was established in 1902. An inviting landscaped picnic area is open to the public; tours of the nursery can be arranged.

    Four kilometres north of Indian Head on Highway 56 stands a large, round, stone stable, an architectural remnant from the days before tractors and combines when horsepower was actually provided by horses. This stable was part of a large farm of nearly 53 000 acres operated here between 1882 and 1889 by Major Bell and the Qu'Appelle Valley Farming Company.

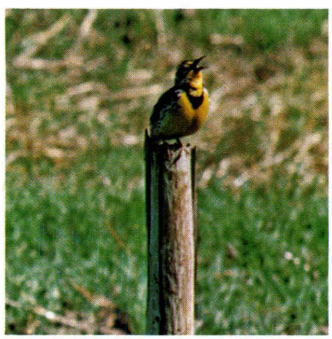
18.9 km (11.8 miles)

9. From March through July the pure, sweet trill of the meadowlark gladdens the land. This yellow-breasted bird typical of the short-grass prairie has adapted well to settlement and cultivation. Where once it would serenade a passing Cree from a weathered buffalo skull, today it sings to traffic from fence posts. It's worth driving with your car windows open just to enjoy the meadowlark's distinctive melody, which carries for nearly a kilometre.

16.0 km (10.0 miles)

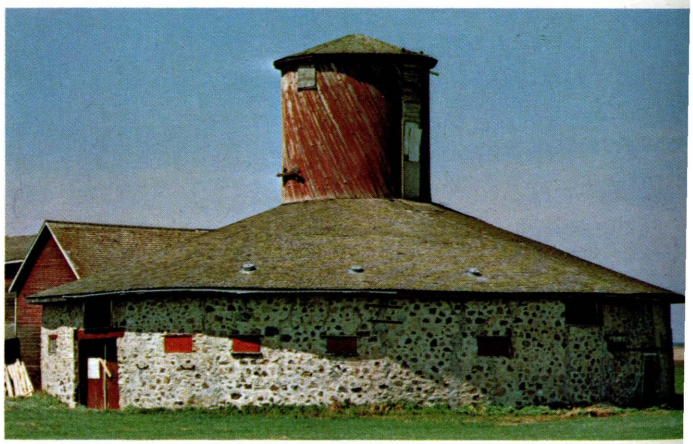
10. The evolution of prairie farming is epitomized by the combine — more mobile, adaptable, and efficient than the old separator, or threshing machine, because it "combines" into one operation the gathering of grain and the separation of kernels from chaff. Before combines became standard equipment on each farm, armadas of these machines moved north from Texas each summer to harvest crops as they ripened, reaching the Prairie Provinces in late August. Some Texan crews still custom-combine their way north to Canada, auctioning off all their machinery at harvest's end.

9.3 km (5.8 miles)



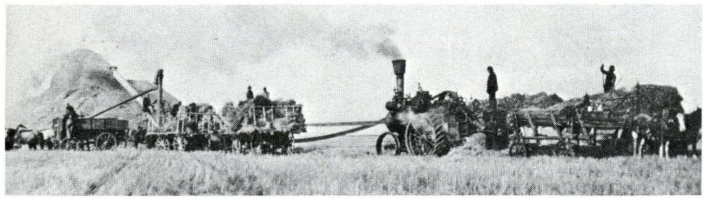
A full-throated meadowlark announces the prairie spring (9)

Chokecherries (11)



Round stone stable near Indian Head, Sask. (R. M. Waldron) (8)

Counts, commoners, and aspen bluffs
Grenfell - Virden



Steam threshing machine at work near Dundurn, Sask., around 1912 (Saskatchewan Archives Board) (10)

A combine harvesting wheat (10)

11. Chokecherries, eaten by the Plains Indians in pemmican, are still used by local residents for syrup, jelly, and wine. Even in prehistoric times, the Qu'Appelle Valley north of here was a favorite Indian berry-picking area for saskatoons, chokecherries, cranberries, pin cherries, and raspberries. This high point provides an excellent vista of the basin of former Lake Indian Head in which Summerberry is nestled.

    12.2 km (7.6 miles)

12. *Katepwa*, Cree for "river that calls," and *Qu'Appelle*, French for "which calls," beckon the traveler north to the beautiful Qu'Appelle Valley. This unexpected gash in the flat prairie was carved by torrents of water released when glaciers melted. Today only a sluggish, sinuous, "misfit" stream winds along at the bottom of the huge valley, but the beauty and refuge from the open prairie that attracted the Crees still draw tourists, who may leave the highway at Grenfell, travel the north side of Crooked and Round lakes, and return to the Trans-Canada at Whitewood. Ecopoints in the Qu'Appelle Valley are described on page 23.

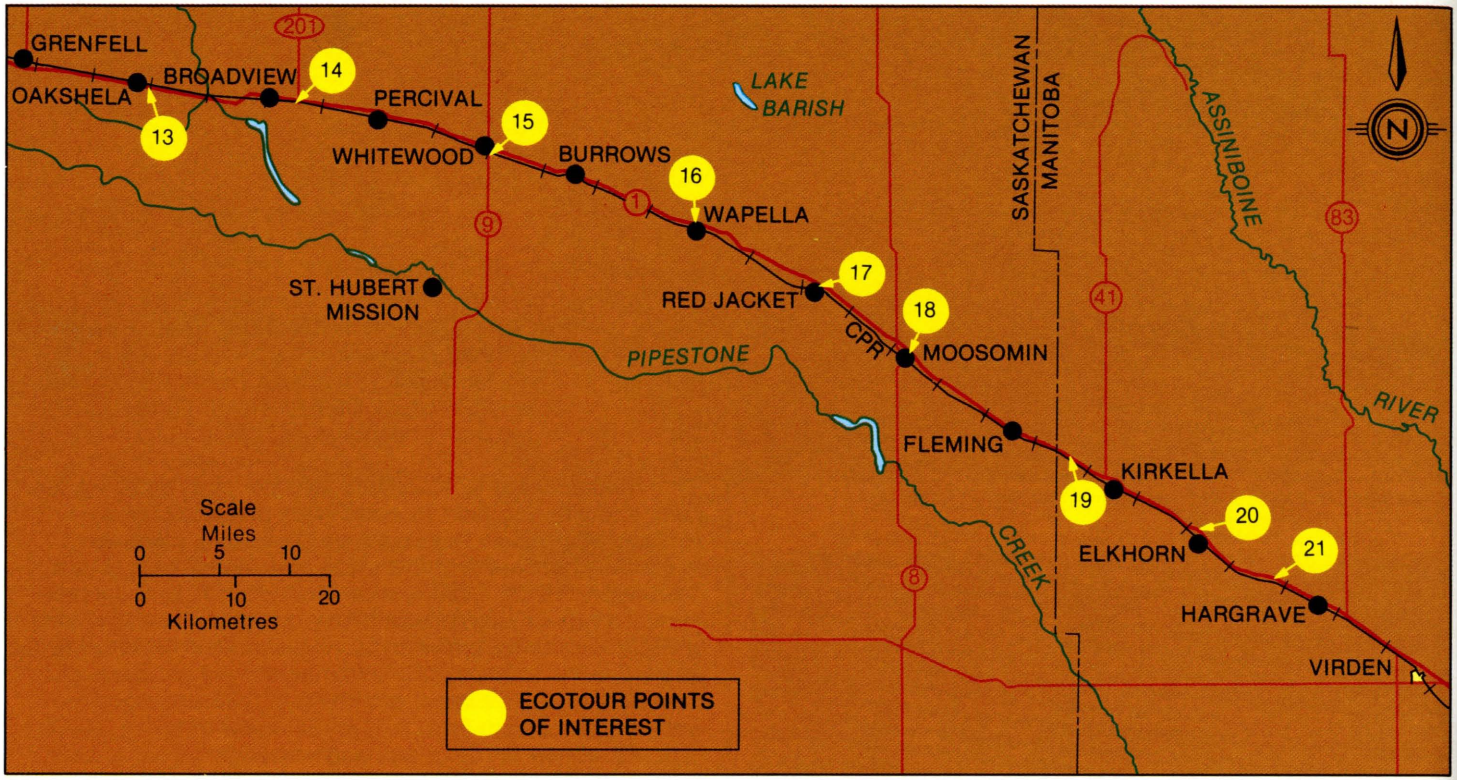
    12.7 km (7.9 miles)

Between Grenfell and Virden the highway passes over rolling moraine with relatively fertile soils. When Captain John Palliser explored this area 100 years ago, it was mainly grassland. However, settlement eliminated prairie wildfires, and aspen invaded the grassland. Today grain and cattle farms are interspersed with aspen bluffs and prairie sloughs.

The hardships of merciless summer sun, bitter winter cold, and clearing land by hand were unsuspected by settlers who picked the aspen parkland as a place to re-create what they had known in their homelands. For a time, even French nobility took to settling here to escape France's republicanism and heavy taxation. French counts brought with them entire families to work on their farms as gardeners, grooms, and servants; carriages, thoroughbred horses, champagne, and the latest Parisian gowns were imported from France. Cheese manufacturing, chicory canning, sheep farming, and sugar beet processing were among the commercial enterprises that they enthusiastically and for the most part futilely embarked upon.

This cultured and coiffured settlement was a delightful anomaly on the frontier, but it couldn't forever ignore the harsh realities of life in the aspen parkland, which was slow to yield material riches either to the counts or to the more typical untitled settlers from Great Britain, Europe, Russia, Eastern Canada, and the United States. In the end, the ethnic influence of these early settlers was widely spread throughout Canada because they could not succeed among the aspen bluffs where they had placed their first hopes.

Some of the French aristocrats of Whitewood, Sask.: Comte de Soras (A), M. de Wolff (B), Comte de Jumilhac (C), and Comte de Langle (D), all members of the Whitewood Town Band (Saskatchewan Archives Board) (15)



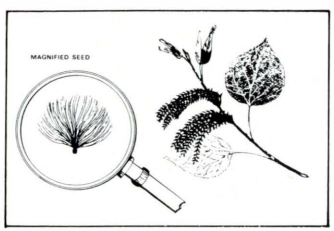
13. There is daily news about energy, pipelines, water, and minerals, but not very often do we hear about Canada's most priceless possession — its farm soil. It took 10 000 years since the melting of the glaciers for grass to build up a supply of nitrogen and organic matter in the soil that you see along the highway here. But it has taken only 70 years of cultivation to lose about 50% of this original organic matter. To replace it would require 100 times the present annual capacity of Canada's fertilizer industry. In contrast, the large granitic buffalo rubbing stone in the slough south of the highway has weathered very little since it was bulldozed here by glaciers from Manitoba's Precambrian Shield. It could be a hundred thousand years before this boulder completely disintegrates to form part of the soil and contributes its nutrients to plant growth.

15.0 km (9.4 miles)

14. In this campground is an abandoned grade of the Canadian Pacific Railway (CPR) built in 1882. Willow, aspen, balsam poplar, and snowberry have now clothed this old grade in a natural vegetative cover, but have not entirely obliterated the actual ruts left behind by Red River carts that traveled from Fort Ellice to Fort Qu'Appelle, beginning in the 1830's. Here you can also examine close up balsam poplar and trembling aspen.

20.2 km (12.5 miles)

Red River carts, shown here at an Indian encampment (Saskatchewan Archives Board) (14)



Trembling aspen leaves and fruit (14)

Balsam poplar leaves and fruit (14)

15. Whitewood was named after the white-barked aspen. The Whitewood Hotel, formerly the Commercial, was the site of a grand annual ball hosted by the French counts who, in 1884, established their country estates near St. Hubert Mission 13 km south of Whitewood. Most of the counts left before the turn of the century, but their presence is marked today by three of their houses, ruins of some of the stone buildings they erected, an overgrown cemetery, and streets in Whitewood bearing French names.

    Westbound travelers may here strike out on the Qu'Appelle Valley route described on page 23.

    22.0 km (13.7 miles)

16. Around 1890, forty Jewish families from Russia took up homestead lands near Lake Barish, north of Wapella, to form the first successful Jewish farm settlement in Canada. They were attracted to the wooded parkland by the abundant aspen for use as lumber and fuel, not realizing the exhausting labor required to root out the aspen stumps. Their first houses were mud-plastered, white-washed aspen log buildings with pole roofs covered with sod. Although one of the meanings of *Wapella* in Sioux is "water near the surface", some wells had to be dug by hand to a depth of 20 m.

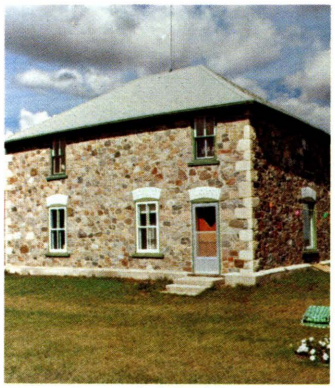
    13.9 km (8.6 miles)

17. Trembling aspen is the most widely distributed tree species in North America, but nowhere does it dominate the landscape as it does here. Its stems are short-lived, often dying from stem rot or fire, but its roots live on for centuries, ever ready to send up new shoots. Its life history is controlled by fire, one of the tools the settlers commonly employed to clear their land of this stubborn usurper. Today, pungent billows of smoke rising from stubble fields indicate that fire is still being used as a cultural tool, even though there is evidence that stubble-burning reduces soil productivity.

    11.4 km (7.1 miles)

18. *Moosomin* is a Cree word meaning either "crossing of the trails" or "mooseberry" (highbush cranberry). Moosomin was the junction of two Indian trading routes and later a stop on the trail followed by explorers and fur traders. Settlers from England, Scotland, Ireland, France, Russia, Germany, Austria, Hungary, and Scandinavia crossed paths at Moosomin when they arrived in the West full of hope to take up farming. The sturdy, imposing stone houses in the area are a testimony to both the skill of Scottish stonemasons and the abundance of fieldstones in the glacial till that impeded farming.

    21.4 km (13.3 miles)



Stone house near Moosomin, Sask. (R. M. Waldron) (18)

Home of Comte de Beaudrap, built south of Whitewood, Sask., around 1887 and still standing (R. M. Waldron) (15)

Log house with later lumber addition built in 1892 near Lake Barish, Sask. (C. E. Leonoff, with permission of Manitoba Historical Society) (16)

Eroded hilltop near Kirkella, Man. (R. M. Waldron) (19)

19. White hilltops on the north side of the highway are an extreme example of wind and water erosion following cultivation. Even weeds won't grow on these hilltops! In contrast, on the south side of the highway only the middle slopes are cultivated, and a self-maintaining aspen woodland on the hilltops stabilizes the soil.

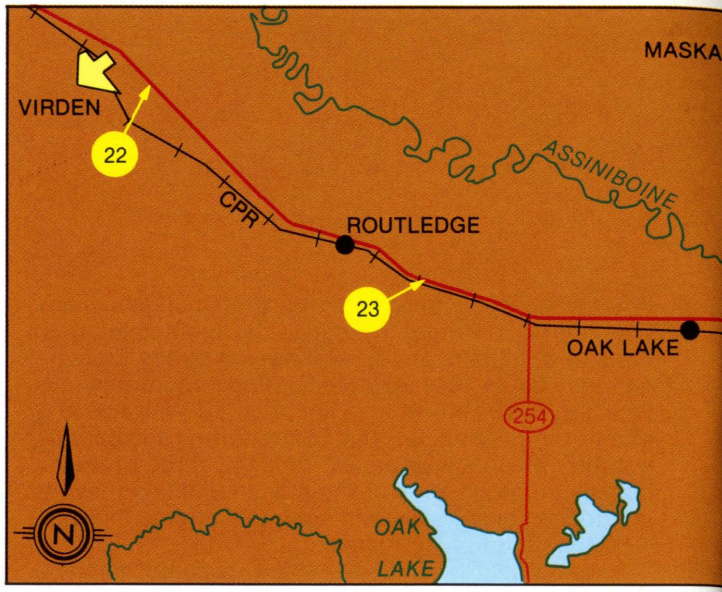
13.8 km (8.6 miles)

20. Salt and water — salt in the soil and water in the innumerable sloughs — hamper cultivation and grain production and encourage a natural vegetative cover of aspen and wolf willow in this area. The large feedlot near Elkhorn depends on forage grown on these poorer classes of agricultural land.

8.6 km (5.4 miles)

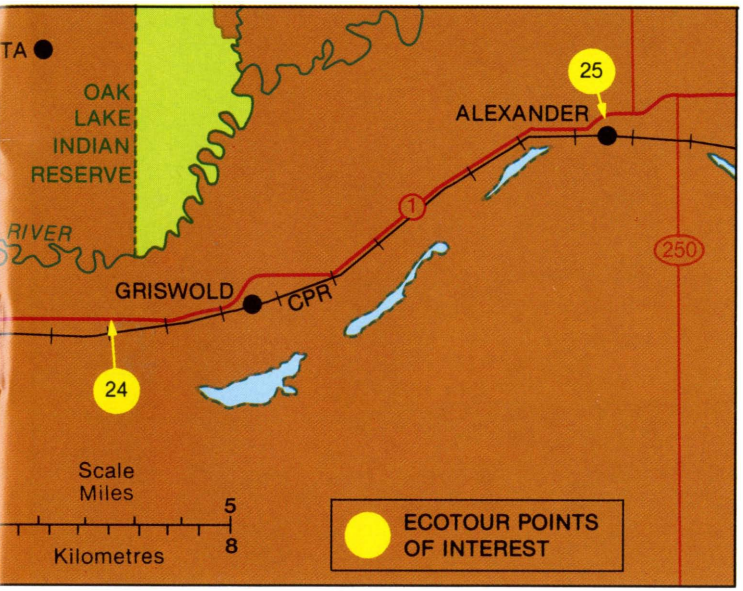
21. The telegraph line played a vital part in opening the West, although its story has never captured the public's interest the way the railway did. The 1600-km line from Fort Garry to Fort Edmonton, completed in 1879, was formidable to maintain. Bison rubbed against and overturned many of the poles; fire burned others. Linemen 160 km apart relied on a buckboard and a single horse over a trail without bridges. With today's microwave towers (north side of highway) it's easy to forget the hardships that our grandfathers took in their stride.

20.5 km (12.8 miles)



Ten kilometres east of Hargrave, the highway descends the western shoreline of former Lake Souris and crosses tree-covered sands between Virden and Oak Lake, and fertile lake-bottom farmlands between Oak Lake and Alexander. Oak, Manitoba maple, and green ash here add a dash of diversity to the uniformity of the aspen parkland. Bur oak, with its stout, crooked, and gnarled branches, cuts a grotesque figure beside the graceful vase-shaped elm or the filagreed foliage of aspen. Settlers preferred oak over aspen for firewood because of its greater heating value, and for construction of Red River carts because of its strength. *Maskawata*, a nearby settlement, is named after the Cree word for oak. *Makinak* ("turtle"), *Wawanesa* ("geese"), *Sisipuk* ("duck"), and *Utik* ("deer") are other neighboring places bearing the names of the wildlife riches so important to the original inhabitants of this region.

Herefords grazing on low-quality agricultural land (20)



Maskawata
Virden - Alexander

22. The presence of salt water in oil wells around Virden is a reminder of the briny origin of western Canada. One hundred and thirty-six million years ago this area was actually an ocean. Today the ocean remnants (oil and salt water) are encountered only when drilling 600 m below the surface. When the oil is pumped out, the salt water is separated from it and injected into nearby abandoned wells to prevent contamination of farmland.

12.2 km (7.6 miles)

23. White-tailed deer browse along creeks and river valley slopes and in the sand dunes around here. South-facing open dune slopes with grasses, oak, choke-cherry, saskatoon, and creeping juniper are snow-free much of the winter and therefore heavily used for travel lanes, bedding areas, and browsing. North-facing slopes thicketed with aspen, white birch, red-osier dogwood, and hazelnut provide shelter and additional food.

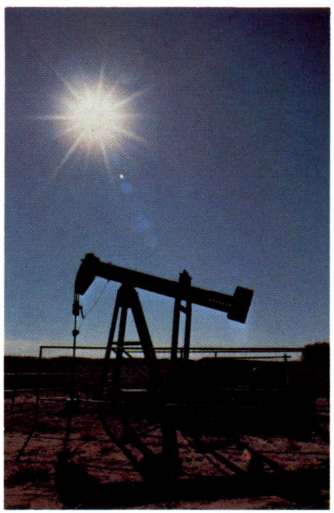
16.5 km (10.2 miles)

24. A stalwart shelterbelt of lance-leaf willow marches single file along the north side of the highway. Caraganas and Manitoba maple are common in shelterbelts along railways, between fields, and around farmyards west of Virden on glacial till soils. On the lake-bottom soils from Virden eastward, lance-leaf willow, elm, green ash, and bur oak are more common shelterbelt species.

19.6 km (12.2 miles)

25. From Griswold to Alexander the highway runs just north of a former stream channel, now marked by a chain of small sloughs, that once drained glacial Lake Souris. Just northeast of Alexander, the highway mounts a sharp ridge, or end moraine, of earth pushed up centuries ago by the brutal force of glacial ice.

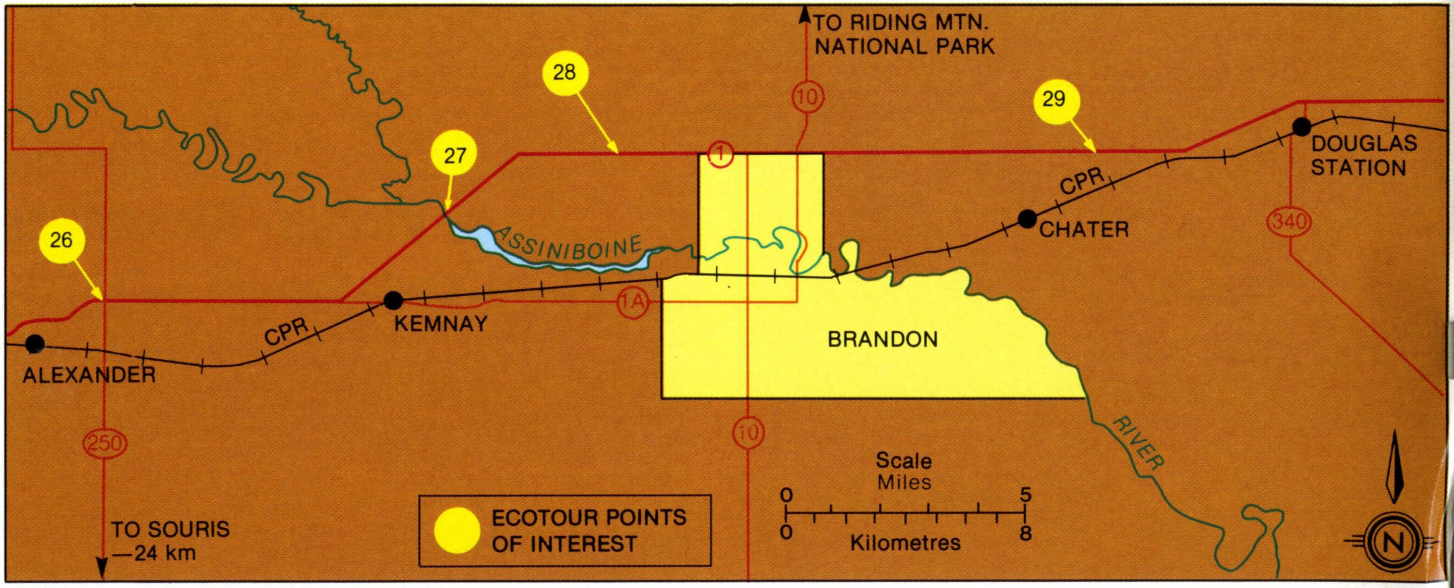
2.8 km (1.8 miles)


Oil well (22)


Bur oak

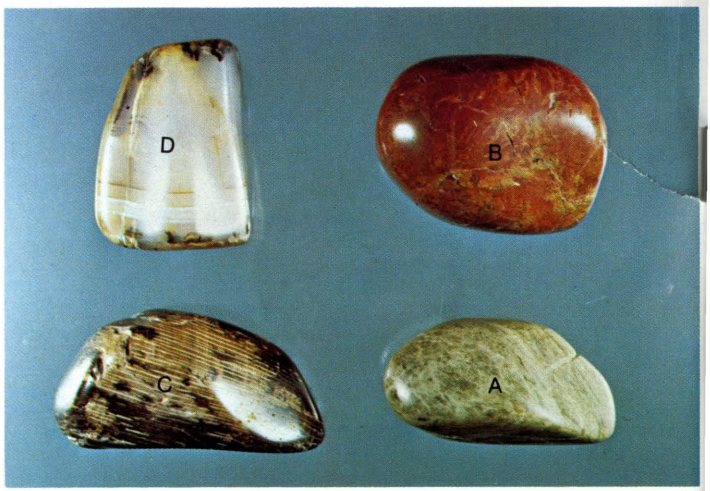

Canada geese


White-tailed deer (Saskatchewan Government photo) (23)



When settlers took up farming in the West, they naturally relied on the agricultural practices and crops that they had known in their homelands. Thus began the domestication and conversion of the native prairie and woodland. Bison were slaughtered, and in their stead cattle were pastured; native grasses were ploughed under and their place was taken by grain or forage crops. Cooking fat, originally obtained from bison, was first replaced by lard and is now pressed from rapeseed and sunflowers. Wild berries gave way to imported fruit trees, and native waterfowl and upland birds were supplanted by domesticated ducks and chickens. The practice of replacing native species with introduced ones necessitated the establishment of agriculture research stations across the Prairies around the turn of the century to develop strains of crops, cattle, poultry, and fruit trees better suited to the harsh prairie climate. Improved techniques to control weeds, reduce soil erosion, and increase yields have also been developed. Only recently has there been research interest in the cultivation and use of native crops such as saskatoons and chokecherries.

Swinging bridge over the Souris River, Man. (26)



Semiprecious epidote (A), jasper (B), petrified wood (C), and Souris agate (D) from the Souris agate pit (P. S. Debnam) (26)

26. At Souris, 24 km south of the Trans-Canada Highway, Canada's longest single-span swinging bridge (178 m) stretches across the Souris River. It was originally built by Squire Sowden in 1904. The bridge doesn't actually swing or sway when you cross, it undulates or bumps; you need your sea legs if there's the slightest breeze. Nearby is the Hillcrest Museum, and outside town is an agate pit where seemingly nondescript stones are eagerly collected by rockhounds as semiprecious epidote, jasper, petrified wood, or Souris agate.

12.8 km (7.9 miles)

The changing landscape, 1880+

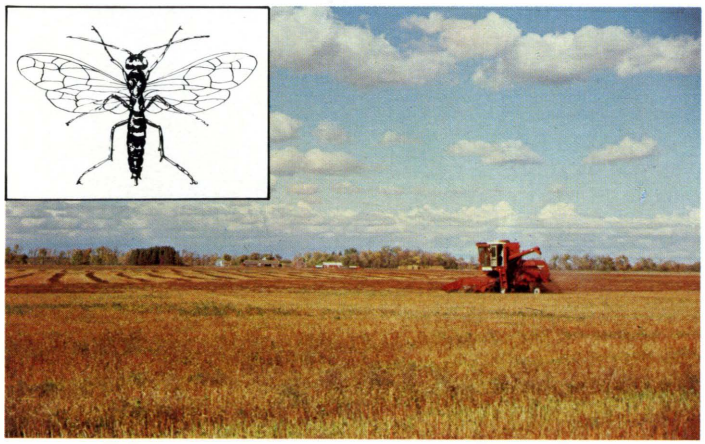
Alexander-Douglas Station

27. Along prairie rivers such as the Assiniboine here, trees of the eastern deciduous forest stretch like fingers into the grassland and aspen parkland. Trees with winged seeds (elm, ash, and maple) have extended westward to about the Alberta-Saskatchewan border in the 10 000 years since the glaciers melted. Oak, whose acorns must be moved by water, birds, or animals, has reached westward only to Last Oak Park north of Broadview on the Qu'Appelle River. The camping and picnic grounds of Grand Valley Recreational Area are a good place to observe a pure stand of bur oak on the south-facing slope of the valley.

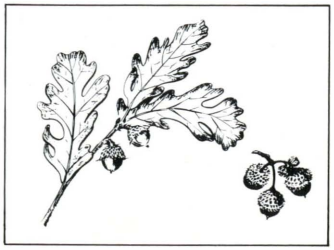
7.3 km (4.5 miles)

28. Wheat was being hauled into Brandon as early as 1883 and has remained the dominant crop to this day. Damage to Red Fife wheat by the wheat stem sawfly became a problem at about the same time. Farmers were helpless as the insect bored its way westward; in 1943 it devastated one-quarter of Saskatchewan's wheat crop. A sawfly-resistant wheat called Rescue was developed by researchers at Canada's experimental farms and introduced to western farmers in 1946. Other important wheat varieties developed by Canadian researchers include Marquis (1905), Thatcher (1935), Chinook (1952), Redman (1953), Selkirk (1960), and Neepawa (1967).

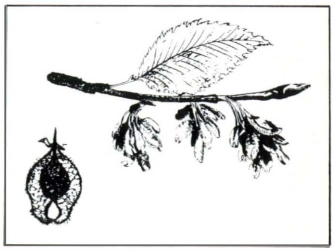
17.7 km (11.0 miles)



Harvesting wheat near Alexander, Man. Insert — adult of the wheat stem sawfly (28)



Bur oak leaves and acorns (27)

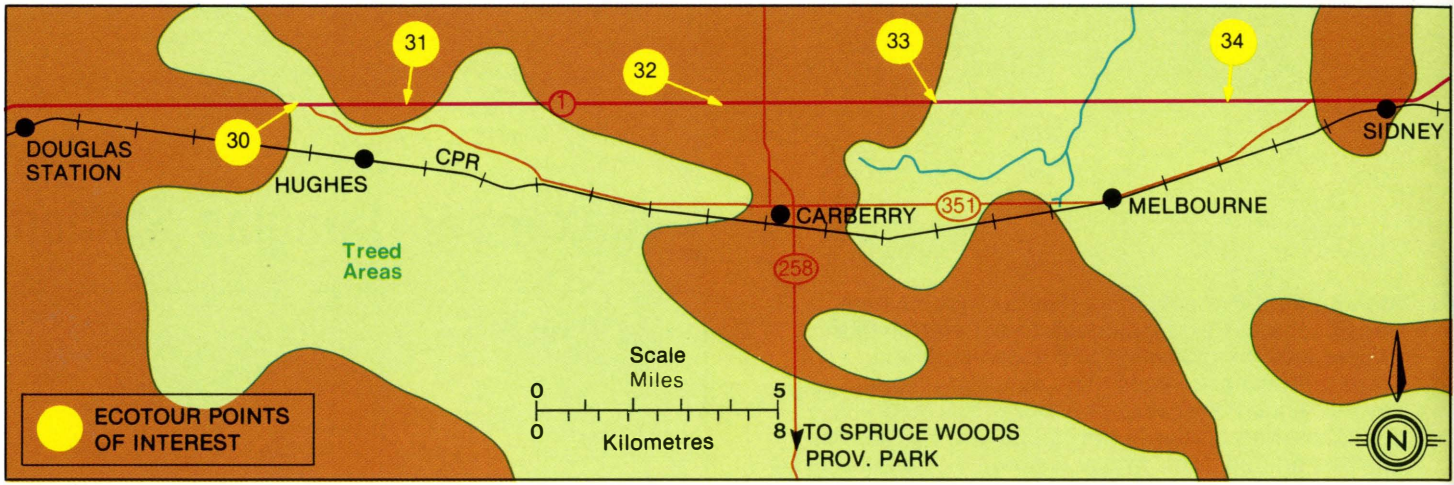


White elm leaf and seeds (27)

Corn harvester at work (Manitoba Government photo) (29)

29. Archaeologists have identified this region as a meeting place where the agricultural Mandan Indians of North Dakota traded corn, beans, and squash to the Assiniboine, Cree, and Saulteaux hunters and gatherers. The corn that grows here today is a silage variety developed by the Brandon Experimental Farm to feed beef and dairy cattle. Corn captures more energy from the sun than any other forage crop, but because it's low in protein, farmers must supplement it with hay.

12.5 km (7.8 miles)

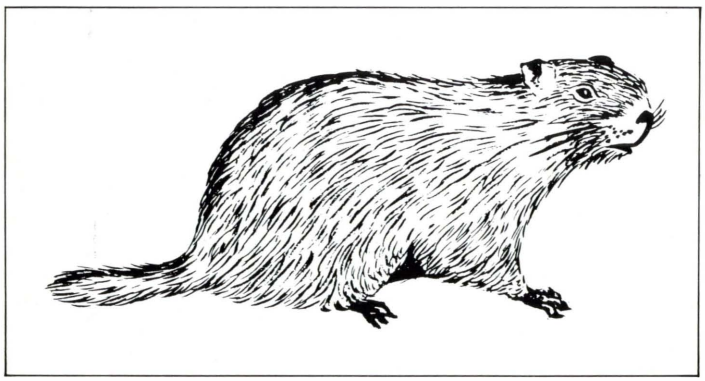


Nowhere else along the route does the highway cross an area of such untamed beauty as the Carberry Sand Hills. These rolling hills, open spaces, quiet ponds, and stately spruce trees were vividly described by the famous naturalist Ernest Thompson Seton as a "crop of priceless treasures." This is the home of several large mammals, including elk, moose, white-tailed deer, wolf, coyote, and fox; bison, pronghorn antelope, and mule deer used to roam here until hunters drove them away. This is the most important natural area in Manitoba, rich in scenic splendor and biological diversity, and its preservation will require an ingenuity as unique as the sand hills themselves. Because the scenery along the Trans-Canada Highway only hints at the beauty of the sand hills, a side trip to Spruce Woods Provincial Park is suggested.

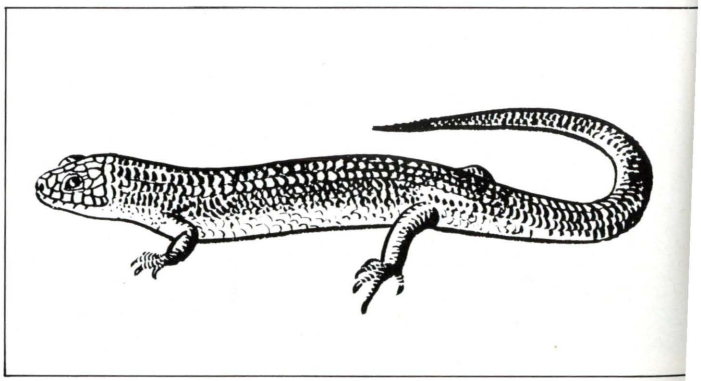
30. The federal government declared this area a timber reserve in 1895 to protect the white spruce forest for settlers. Early foresters planted natural openings in spruce and pine at regular 2-m spacings. Today the practice of row planting is discouraged because it detracts from the natural appearance of the hills, reduces the area of grassy open slopes so important to wildlife, and may attract commercial logging to an area highly prized for recreation.

3.6 km (2.2 miles)

The signature of the wind left on drifting dunes (34)



Woodchuck



Northern prairie skink

The Carberry Sand Hills
Douglas Station-Sidney

31. The uniqueness of these hills is partly due to "relict populations" of plants and animals that are isolated from their main area of distribution. White spruce on the hills, lowland black spruce and tamarack, and Labrador tea really "belong" in the northern boreal forest, as do the ruffed grouse, gray jay, and pileated woodpecker. Manitoba's only lizard, the northern prairie skink, dwells here along with the plains hognose snake, plains spadefoot toad, and cactus, all far north of their usual range. The woodchuck and eastern chipmunk are at their western limit of distribution in these hills.

10.3 km (6.4 miles)

32. Most of the fields here are planted in potatoes. John Macoun noted in 1880 that potatoes grown here surpassed anything seen by an Irishman in his own country. Today, netted gem potatoes thrive on the sands that were deposited thousands of years ago as the upper delta of the Assiniboine River. A processing plant near Carberry annually produces 45 million kg of frozen french fries, hash browns, and instant potatoes.

6.8 km (4.2 miles)

White spruce on stabilized dunes (34)

33. The inconspicuous, weather-beaten boxes attached to the solitary line of fence posts north of the highway are only a few of the 7000 bluebird boxes that have been placed along the 3200 km of highways and back roads between North Battleford, Saskatchewan, and MacGregor, Manitoba. These nesting boxes have been built by volunteers to house the native bluebird, whose numbers had been declining because of the loss of its natural nesting habitat in holes excavated by woodpeckers and chickadees in old trees.

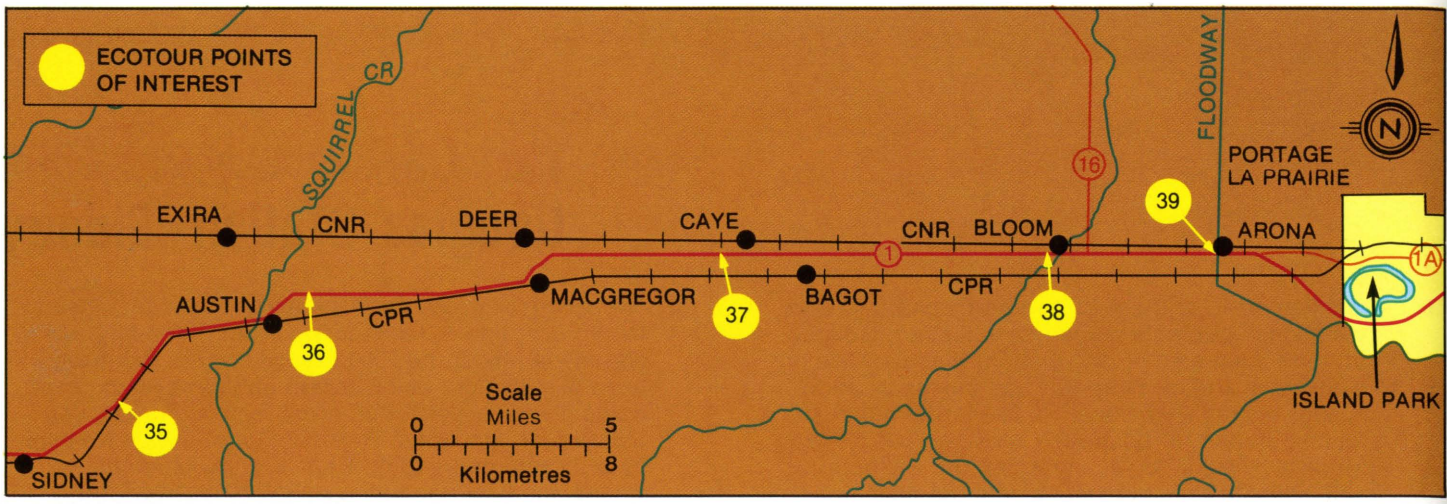
9.8 km (6.1 miles)

Bluebird nesting box (R. M. Waldron) (33)

34. Without vegetative cover these sand dunes would still be shifting at the whim of the winds. The first pioneers to colonize the open dunes are wild rye, little bluestem, sand reedgrass, and the rare pin cushion cactus. Mat-forming bearberry and juniper then invade, along with wolf willow and chokecherry. Finally, aspen, oak, and spruce send down their roots and stabilize the dunes. Because sand quickly absorbs rainfall instead of losing it in runoff, deeply rooted trees have a good water supply even though the surface soil is dry.

    Westbound travelers may stretch their legs at Seton Wayside Park and have a closeup look at the three layers of vegetation.

9.5 km (5.9 miles)



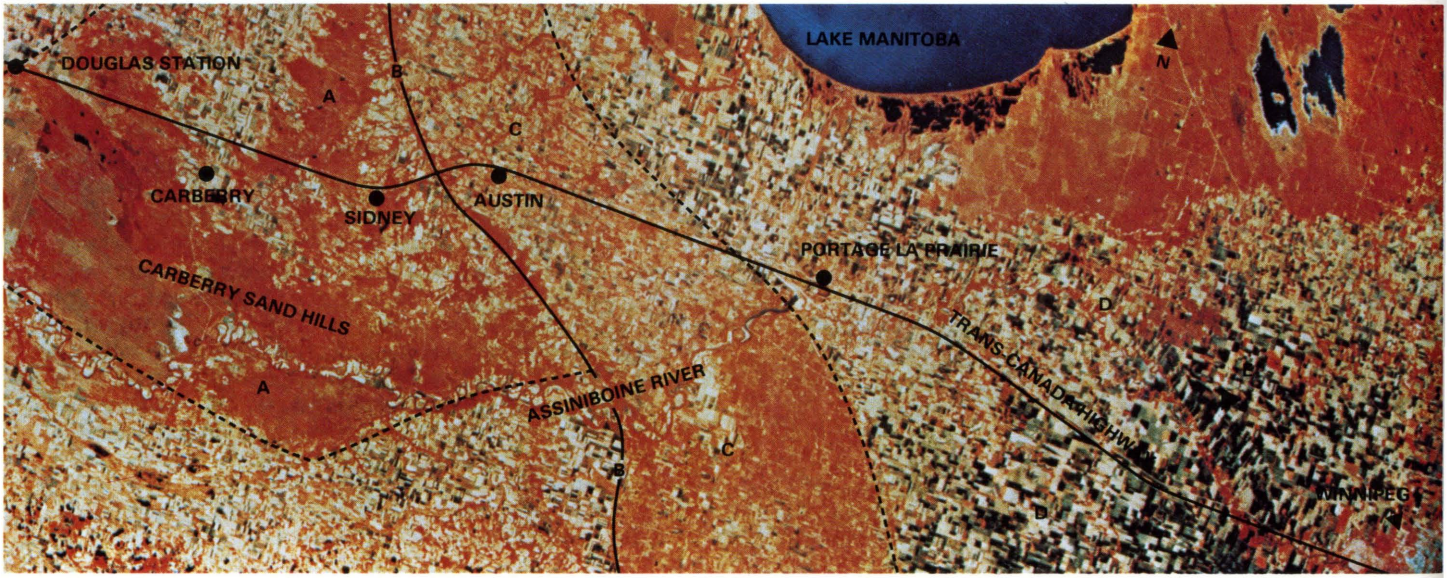
Lakes Manitoba and Winnipeg are the most conspicuous remnants of glacial Lake Agassiz, which 10 000 years ago covered an area twice as large as the Great Lakes. Other remnants are the upper Assiniboine delta, main beach, lower Assiniboine delta, and lake bottom. The sands of the originally flat upper delta were later drifted by wind into the dunes of the Carberry Sand Hills. For a distance of 2 km east from Sidney you cross the eastern edge of this upper delta (A on satellite photo), descend its face for the next 3 km, and then cross the sand and gravel deposits of the main beach (B) just west of Squirrel Creek. Sandy deposits of the lower delta (C) extend in a gently sloping apron from Austin to Portage la Prairie. From Portage eastward the highway crosses clay and silt bottom lands (D) of the former glacial lake.

35. Between Sidney and Austin modern cars speed along the old Saskatchewan Trail that fur traders and Indians on horseback toiled along in the early 1880's. This same route was later traversed by settlers in squealing Red River carts, and shortly thereafter in 1882 by CPR steam engines.

    9.0 km (5.6 miles)

36. Bright sunflowers are an increasingly common crop along this stretch of the highway. The fields of cheery yellow flowers, which seem to gaze toward the sun, are grown primarily for the edible oil in the seeds. Prairie children can eat sunflower seeds with amazing rapidity, extracting the meat and spitting out the husks in one operation.

    17.2 km (10.7 miles)



Satellite view shows the upper Assiniboine delta (A), main beach (B), lower Assiniboine delta (C), and lake bottom (D). River lots (E) were laid out by the Earlof Selkirk around 1817 (see ecopoint 42) (37)

Glacial Lake Agassiz
Sidney-Portage la Prairie

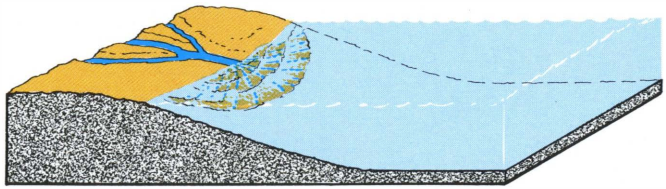
37. An imposing plains, or deltoid, cottonwood, spared by an unknown construction engineer, stands alone beside the highway. *Deltoid* is Greek for "triangular", describing the shape of the cottonwood's leaves. Sandy river deltas such as the one over which you are driving here have a similar shape. Deltas are formed where soil-laden rivers enter a large lake or ocean. As the river flows into the lake its velocity is reduced so much that it drops its sand load. The delta is narrow at the river mouth, fanning out to form a triangle. Sunflowers, corn, potatoes, and forage crops today thrive on these sandy soils.

13.2 km (8.2 miles)

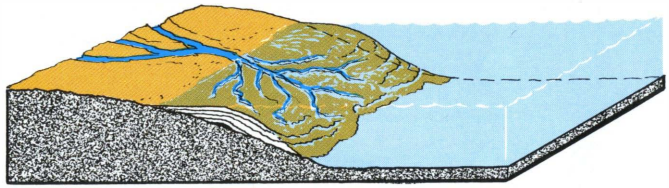
38. Perhaps it was the lack of distinctive landmarks on this flat lake bottom that taxed the imagination of those responsible for selecting railway station names. One novel approach begins just west of Portage la Prairie, where Arona, Bloom, Caye, Deer, and Exira appear as place names on the Canadian National Railway. This alphabetical series ends with Welby, Yarbo, and Zeneta in Saskatchewan. Bloom, located about 0.5 km north of this point, is marked by a small building and a microwave tower.

7.7 km (4.8 miles)

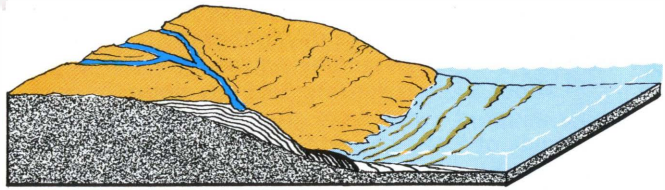
A sea of sunflowers (Saskatchewan Government photo)



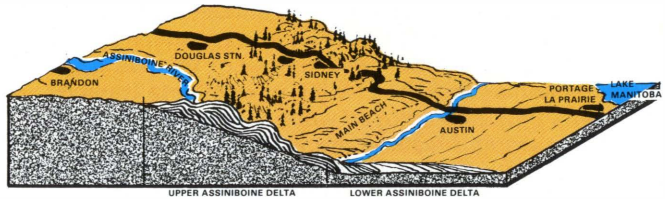
About 10 000 years ago the Assiniboine River began depositing sand from the Qu'Appelle River Valley in a triangular delta where it entered Lake Agassiz east of Douglas Station.



The annual layers of sand deposits continued; at this stage the delta was approximately 40 km (25 miles) from west to east and up to 50 m thick.



The level of Lake Agassiz suddenly dropped, leaving the delta deposits high and dry. Formation of the main beach and the sandy lower delta began.

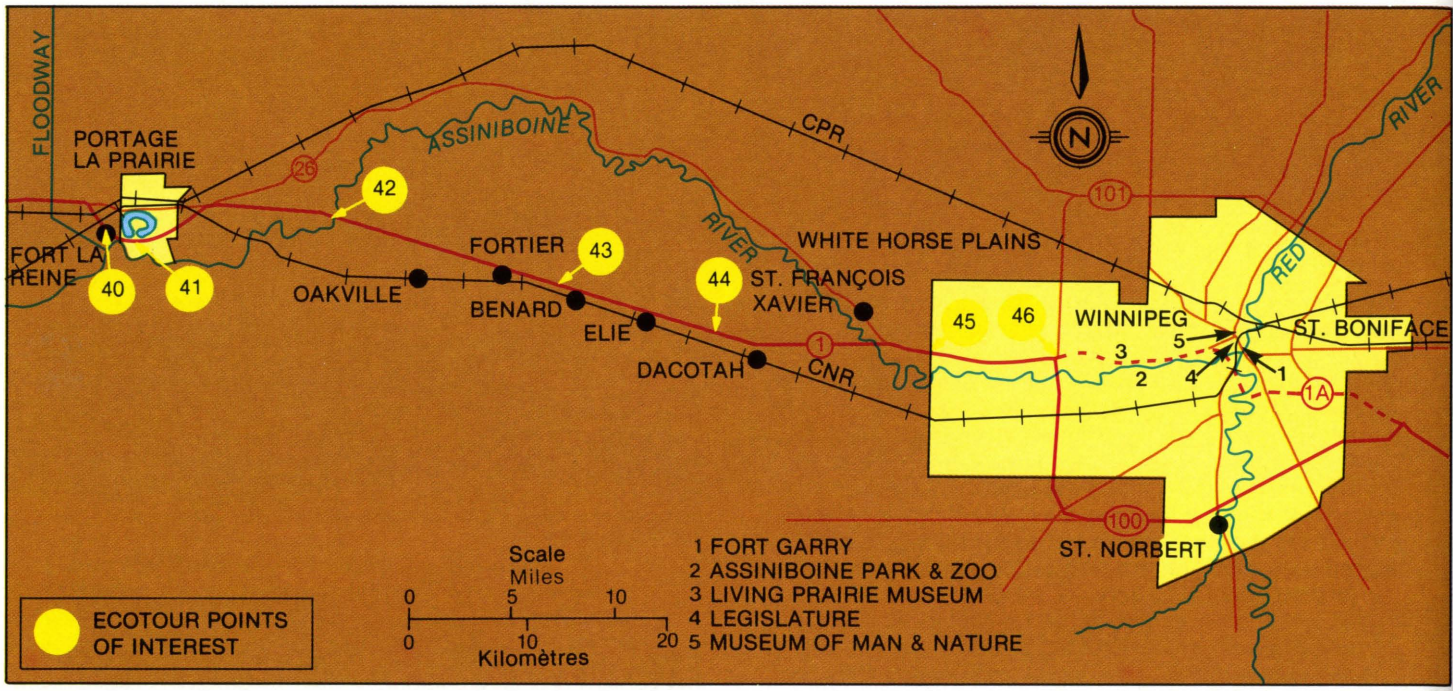


About 5000 years ago Lake Agassiz drained further, leaving lakes Winnipeg and Manitoba as remnants. The sands of the upper delta were whipped by winds into dunes, and the lower delta was exposed.

Formation of the upper Assiniboine delta (Carberry Sand Hills), main beach, and lower Assiniboine delta of glacial Lake Agassiz (37)

39. This floodway, known as the Portage Diversion, was built to divert floodwater from the Assiniboine River to Lake Manitoba. Island Park in Portage la Prairie was formed when a meander of the Assiniboine River was cut off from the main stream: a classic example of an oxbow lake.

4.7 km (2.9 miles)



Western Canada's first settlers were Scottish and Irish immigrants who arrived at Fort Garry (Winnipeg) in 1812 under the sponsorship of Douglas, Earl of Selkirk. Lord Selkirk's 1817 treaty with the Indians gave him the land as far back from the riverbanks as daylight could be seen under the belly of a pony standing on the level prairie — a distance of about 3 km. River lots, laid out along the Assiniboine and Red rivers, were grouped into parishes that bear names of Scottish and French saints.

Métis were the offspring of Scottish or French fur traders and Saulteaux or Cree Indians. Many of them worked for the Hudson's Bay and North West companies; their forte was conducting the great annual bison hunts that provided them, the fur traders, and the early settlers with winter food. After the 1821 merger of the two fur-trading companies and the closing of duplicate trading posts, Métis thus unemployed were encouraged to settle on the White Horse Plains in the Red River valley. Here, known as *les Bois Brûlés* (literally, "burnt wood") because of their dark skin, they were a virtual nation of restless, carefree, hospitable, and devout people.

When Manitoba became a province in 1870 it was largely French-speaking, and its first legislature was dominated by Métis. This was soon to change, however, with the arrival of many other ethnic groups. Today Winnipeg is a cosmopolitan conglomerate, with over forty nationalities represented.

The Métis spring bison hunt in 1853 near the Souris River: 824 carts, 1200 horses, and 1300 people (Glenbow-Alberta Institute) (44)

40. *Portage la Prairie* refers to the few kilometres of portage across the prairie made at this point by Indians and French fur traders traveling from the Assiniboine River to Lake Manitoba. In 1738, La Vérendrye, unsung French-Canadian discoverer of the Canadian West, built Fort la Reine at the crossing of the Yellow Quill Trail and Assiniboine River. The fort, of which there is a replica in Portage, served as a base for his explorations north to the Saskatchewan River, west to the Rockies, and southwest to the Dakotas.

2.0 km (1.3 miles)

Portage la Prairie - Winnipeg

41. The black loam soils from Portage la Prairie eastward are exceptionally fertile and well suited for irrigation. A wide variety of market garden crops — sugar beets, onions, carrots, tomatoes, potatoes, cabbage, corn, and sunflowers — is grown commercially here. A vegetable soup processing plant is located at Portage because of this happy combination of suitable climate, excellent soils, and irrigation from the Assiniboine River.

15.8 km (9.8 miles)

42. The Assiniboine River was the original highway across southern Manitoba and an important source of good drinking water for the Selkirk and Métis settlers. So that every settler could have access to the Assiniboine, river lots 3200 m long but only 240 m wide were laid out between Fort Garry and Portage la Prairie and along the Red River (E on satellite photo, page 18). When land surveyors sent by Ottawa began to lay out 6-mile-square townships containing thirty-six 1-square-mile (2.6 km^2) sections across western Canada with no concern for either topographic features such as rivers or existing land allocations, Métis and white settlers alike resisted the intrusion. This was the conflict that exploded into the First Northwest Rebellion in 1869.

18.3 km (11.4 miles)

Mechanized celery picker near Portage la Prairie, Man. (Manitoba Government photo) (41)

Grasses (left) and wildflowers (right) of the tall grass prairie (44)

43. The first Hutterites to settle in Canada were a group of 22 from South Dakota who built three colonies near Elie in 1918. Hutterites live in farm communities in which property is held jointly by all members, who bunk in dormitories and work together under elected leaders. Each colony is limited to about 100 members. There are now sixty such colonies in Manitoba, one of which is marked by a grain elevator (but no railroad!) and a cluster of white buildings north of the highway near Benard.

12.1 km (7.5 miles)

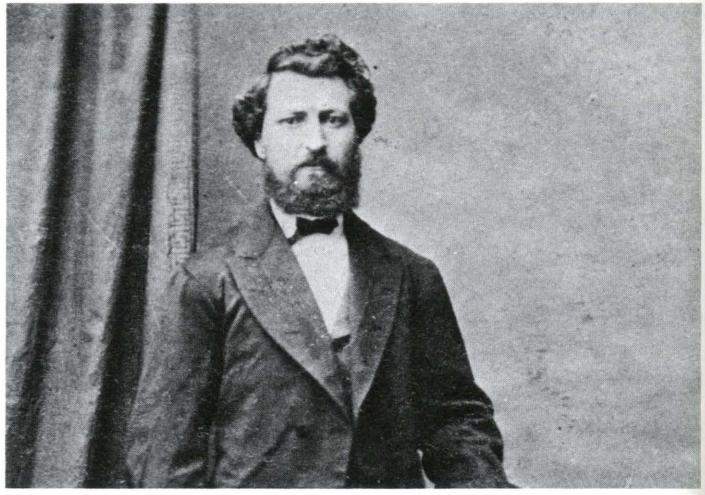
44. The northern boundary of the former tall grass prairie is thought to have occurred near here. This true prairie, which was dominated by big bluestem, little bluestem, and many colorful flowers, supported vast herds of bison until the early 1800's. By mid-century, Métis from the White Horse Plains were forced to travel to the Turtle Mountains of southwest Manitoba to hunt the bison. In 1840 one such hunt consisted of 1600 people, 1210 carts, and 1000 riding horses and produced over 450 000 kg of pemmican.

Surprisingly, one must now look to the City of Winnipeg for one of the few surviving examples of tall grass prairie. The knee-high grasses can be seen at the Living Prairie Museum located on Ness Avenue between Harcourt Street and Prairie View Road.

16.3 km (10.1 miles)

45. Here the highway crosses the Principal Meridian, which was laid out between 1869 and 1871 as the first of five north-south baselines for land surveys in western Canada. The Métis who interrupted the survey work in 1869 were led by Louis Riel, whose name was to light the Canadian West like a prairie fire for 15 years. The First Northwest Rebellion was politically resolved by the establishment of the Province of Manitoba in 1870, but this did not ameliorate the situation of the Métis. Unable to settle down to a life of farming, some Métis moved to Batoche (near Prince Albert) and there attempted to resume their traditional roving lifestyle. By 1885 discontent arising from the dealings of land speculators, Indians starving on reserves, and more land ownership problems provoked the Métis into asking Riel to plead their cause with Ottawa again. When he was unsuccessful they turned to arms. The Second Northwest Rebellion was put down by Eastern Canadians under General Middleton, and Riel was captured. The Métis way of life was doomed when, in spite of the jury's recommendation for leniency, Riel was executed for treason in Regina in November 1885.

9.6 km (6.0 miles) to TCH and Winnipeg Bypass West



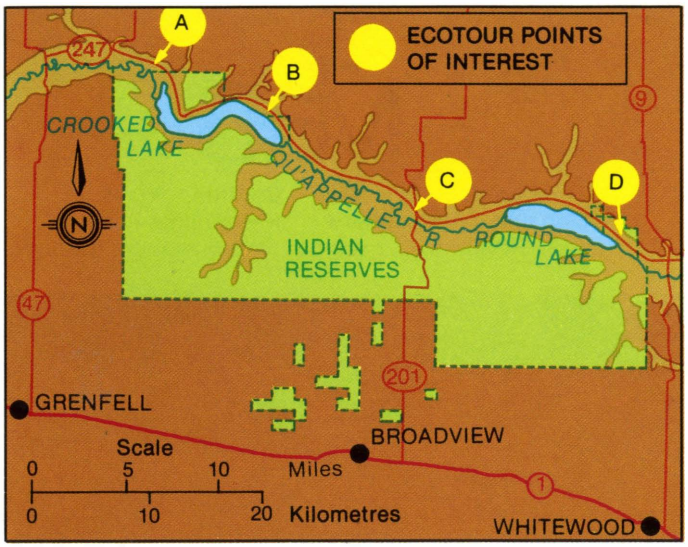
"I know that through the grace of God I am the founder of Manitoba." — Louis Riel, July 1885 (Glenbow-Alberta Institute) (45)

Exuberant spirits, colorful costumes, and traditional foods highlight Folklorama (Manitoba Government photo) (46)

46. After the land between Regina and Winnipeg emerged from the glaciers and lakes of the ice age, those who first used the land relied heavily on a single resource: bison. As settlers tried to tame the land, they too focused on a single resource: wheat. Today's land uses are more diverse, with a much wider range of crops. Even exotic methods of protein production such as stocking ponds with trout or harvesting grasshoppers are being tried. Untamed lands such as the Carberry Sand Hills are preserved for their uniqueness, scenery, and wildlife. Marginal farmlands are increasingly allowed to revert to aspen bluffs and sloughs, which harbor many species of mammals, upland birds, and waterfowl.

Just as the uniform parkland and prairie have been altered into a more diverse landscape, the serviceable homespun of early prairie life has been transformed into a variegated tapestry by the addition of strands from many different cultures. Winnipeg, with its annual Folklorama that displays the lively dances and savory foods of forty different nations, perhaps best exemplifies the color, strength, and variety of this cultural fabric. The tapestry cannot help but be richer when more of the features of the Indian and Métis ways of life have been woven in.

23.8 km (14.8 miles) to
Winnipeg Bypass South and Highway 75



The peaceful beauty of Crooked and Round lakes belies their difficult water management problems. Nutrients from nearby cities and farms and from summer cottages and campgrounds in the valley encourage thick algal growth, which makes the lakes attractive to waterfowl but distasteful to humans wanting to fish, swim, boat, or water-ski. Periodically the lakes flood in the spring (1955, 1969, 1975), and water quality in the sluggish Qu'Appelle River is poor. Today all interprovincial river flows in the Prairies are apportioned by agreement — an indication of the scarcity and importance of water.

34.0 km (21.1 miles) TCH to A

A. An impressive stand of giant reed grass, almost like bamboo, occurs on the valley slope just below the road where a spring bubbles to the surface. This extra moisture accounts for the grass occurring here, well away from its usual habitat around lakes and marshes.

11.6 km (7.2 miles)

B. Thousands of Indian burial mounds were built throughout North America between 1000 B.C. and 1600 A.D. They contained the body of the deceased, his personal belongings, and items he needed in the next life. Anyone wishing to climb the steep valley slope to see a burial mound built 950 years ago should first visit the Moose Bay Burial Mound kiosk located here.

15.6 km (9.7 miles)

C. This is a good viewpoint to observe contrasting vegetation on south- and north-facing slopes. South-facing slopes are fully exposed to the sun, resulting in a warm, arid microclimate favorable only to grasses. Sheltered north-facing slopes tend to have a cool, moist microclimate more amenable to trees, including white birch, green ash, American elm, Manitoba maple, and the more abundant aspen and balsam poplar.

The Qu'Appelle Valley

Qu'Appelle River Valley (C)

15.6 km (9.7 miles)

D. A valley terrace located to the south of Round Lake can be seen from this vantage point; terraces are also prominent land features on the south side of the valley west of Crooked Lake. These terraces, composed of gravel, were deposited by the turbulent glacial streams that flowed into the Qu'Appelle Valley years ago. The roadside kiosk explains the formation of terraces and also tells the story of the Round Lake Mission for Cree Indians that existed here between 1885 and 1951.

24.5 km (15.2 miles) to Junction of TCH and Highway 9

Giant reed grass (R. M. Waldron) (A)

Environment Canada | Environnement Canada

Forestry Service | Service des Forêts

MaB

Contribution to the Man and the Biosphere Program/Canada | Contribution au Programme l'homme et la biosphère/Canada

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Our Forest Environment and the Canadian Forestry Service

The volume and multiplicity of forest products have 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 the 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

- *conducting research and development in forest management and forest products*
- *disseminating information and providing technical services to provincial governments, forest industries, and other agencies*
- *preparing and distributing information to the general public*
- *providing grants to universities to encourage development of centers of research excellence in forestry.*

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Aspen parkland