

# For Minnesota Cattlemen, Yesterday's Prairie Can Bring Tomorrow's Profit

**Glen A. Kajewski**

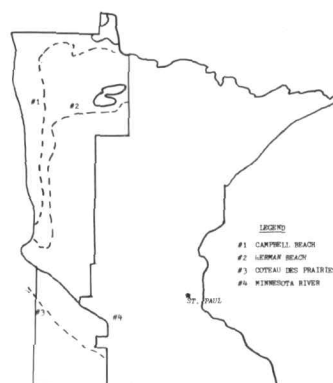
Besides being the land of Paul Bunyan and headwaters of the mighty Mississippi, Minnesota was once part of the tall grass prairie. The majority of the original prairie has long since become the richest farmland in the state and only about 3 million acres of range remain.

## Northwestern Minnesota Rangeland

Today, northwestern Minnesota's flat Red River valley has some of the best cropland in the world. Once, though, it was all under water. The Red River Valley of northwestern Minnesota was formed by glacial Lake Agassiz during the time of the big cold. Lake Agassiz at its highest point once covered 17,000 square miles in Minnesota. From its northern border in Canada to its southern border in Minnesota, it once stretched for 700 miles and was up to 700 feet deep. As the lake fluctuated and shrank, beaches were formed whenever the lake stayed at one level. The wave action of Lake Agassiz dumped coarse material along the shoreline forming these beach ridges. The Herman beach marks the eastern boundary of the grand old lake. The Campbell beach to the west

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was the largest and last to be formed before Lake Agassiz finally drained.

The Campbell ridge and a few other minor ridges once served as a highway for early settlers and traders. Known as the Pembina Trail, this was an oxcart route from St. Paul to Pembina, North Dakota, and into Canada. History books state that the oxcarts groaned and creaked so much that they could be heard long before they were seen. Some of the ruts made by the huge wheels can still be seen today.

Moose, white-tailed deer, and ruffed grouse frequent the beach ridge range. They use the poplar, aspen, alder, and willow thickets for browse and cover. The beach ridges prove to be popular travel lanes for big game in spring when low areas between the ridges are flooded.



*Indiangrass is a major grass on several range sites in Minnesota; it is a popular forage plant for livestock.*

The beach ridges also provide ideal habitat for the prairie chicken and sharp-tailed grouse. Booming grounds for the prairie chicken range from Rothsay in Wilkin County (Minnesota's Prairie Chicken Capital) to central Polk County in northwestern Minnesota. Many of these booming areas have been acquired by the Nature Conservancy and Minnesota's Department of Natural Resources. The remaining areas are contained on some of the larger cattle operations.

Rare plants in this area are skeleton plants and ricegrass found on the sand dunes near Fertile, and the white-fringed prairie orchid, which can be seen on some of the wetter range sites.

### Southwestern Minnesota's Rangeland

Another area of range is in southwestern Minnesota. Rough, steep, or stony soils prevent plowing this land, which is the main reason why so much range remains in this area of the state. This line of soils begins in northeastern South Dakota, with its eastern edge cutting across southwestern Minnesota and into Iowa. Known as Coteau des Prairies, "highland of the prairies," it consists of glacial drift deposited on quartzite and cretaceous shales and sandstones. The ridges were created on this "bedrock high" as the glaciers moved through and left moraines. The Bemis moraine forms the crest of the Coteau des Prairies.

Rock outcroppings can be seen in many areas of southwestern Minnesota. Blue Mounds State Park gets its name from the bluish green lichens which color the rock bluffs in the park. American Indians drove buffalo to their death over that same rock outcropping. Today a small herd of buffalo has been reestablished on the state park land.

The Altamont moraine contributes another large area of range in western Yellow Medicine County. This moraine was formed during the same period as the Coteau des Prairies and has the same soils. The other area of range in southwest Minnesota is along the Minnesota River from the South Dakota line to an area near Redwood Falls. The river has rocky bluffs and ridges lining much of its course, again



*Rock outcropping is a typical sight on some range areas. These rocky areas are a stronghold for range in southwestern Minnesota.*

making these areas hard to convert to cropland.

In addition to the buffalo at Blue Mounds State Park, white-tailed deer are common along with pheasant, Hungarian partridge, ducks, and geese. The U.S. Fish and Wildlife Service and the Minnesota Department of Natural Resources own a considerable acreage of wildlife land along the Minnesota River in Big Stone and Lac qui Parle Counties. This is a prime resting stop for migrating waterfowl in spring and fall.

Quite a change in temperature extremes and growing seasons takes place from the Canadian border to the Iowa line. Average temperatures are 5-10° F cooler in the north and the growing season is 3 weeks shorter. Average annual precipitation in the range country is 20-26". Winter temperatures often go below -30° F while summer temperatures climb to 100° F.



*Quality Hereford calves are produced on northwestern Minnesota grasslands, this cow-calf operation enjoys the protection of scattered poplar and aspen thickets during bad weather.*

### Production on Minnesota Rangeland

On southwestern Minnesota's rangeland, soil conditions vary from dry, shallow-to-gravel areas to wetter sites. The shallow-to-gravel range consists of medium length and short grasses. Common medium length grasses are needleand-thread, little bluestem, prairie dropseed, and sideoats grama. Blue grama is the most common short grass.

Grasses that are in a climax or excellent condition produce about 2,6000 pounders per acre on these drier sites. Production of dry matter ranges from 2,200 to 3,200 pounds per acre.

Higher production can be expected on the wetter sites, where dry matter yields average about 7,000 pounds per acre when grass is in a climax condition. Prairie cordgrass, bluejoint, northern reedgrass, and reed canarygrass are the most common grasses on wetter sites. Sedges comprise about 20 percent, while switchgrass and Canada wildrye grow on the edges where conditions are drier.

Beef operations are smaller in this area of the state compared to northwest Minnesota. The majority of these operations are located in Pipestone, Lincoln, and western Yellow Medicine county along the major moraines mentioned earlier.

Most of northwestern Minnesota's range is along the Campbell beach ridge.

Coarse materials of sands and gravels formed the ridges, but as Lake Agassiz subsided, finer textured materials were deposited between the ridges. This makes for an interesting transition from droughty soils on the ridges to poorly drained soils between them. Due to poor drainage, much of the land is better suited for livestock, hay, and wildlife production than for crop production.

Cattle operations in this part of the state vary in size from a few hundred acres to several thousand acres. Management varies with the size of the operation. Larger operations usually consist of a complete beef operation, from cow-calf to finished feeder. Calving is timed to occur in April and May to

take advantage of better weather for calving on open pastures. Scattered poplar and aspen thickets in the pastures provide needed protection from freezing drizzle, sudden snowstorms and other bad weather.

Most cattlemen do not know all they could about managing the native grasses that make up Minnesota's rangeland. The result is that the majority of range in Minnesota is in a steady to declining condition. Little of it is being managed in a way that will increase its productivity and value to the owner.

Most landowners do not understand the role of rangeland in a grazing system, and they are not aware of its specific management needs. Instead, the rangeland is being overgrazed a condition that it takes years to recover from.

Some landowners are using rotation grazing on their pastures. Rotation grazing results in healthier stands and more forage on both cool and warm season grasses. When used, rotation grazing is usually balanced in a three pasture system. Pastures are rotated on a three-pasture, 3-year schedule. Grazing periods are staggered so that no pasture is grazed at the same time during the 3 years.

Rotation grazing seems to be the exception, though, and overgrazing is the standard on much of Minnesota's rangeland.

Livestock can usually begin grazing safely between May 15 and June 1 in the north and should end around September 10 to protect native grasses. This grazing period can be extended 2-3 weeks in the south.

In a state where cropland and other resources take a front seat, range management often becomes a neglected bystander. This has been the trend, but through education and work that Soil Conservation Service personnel and range management specialists from the University of Minnesota are doing with landowners, the trend is being reversed slowly. Although a minor resource the Minnesota, with the proper effort, rangeland can become Minnesota's best managed resource.

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