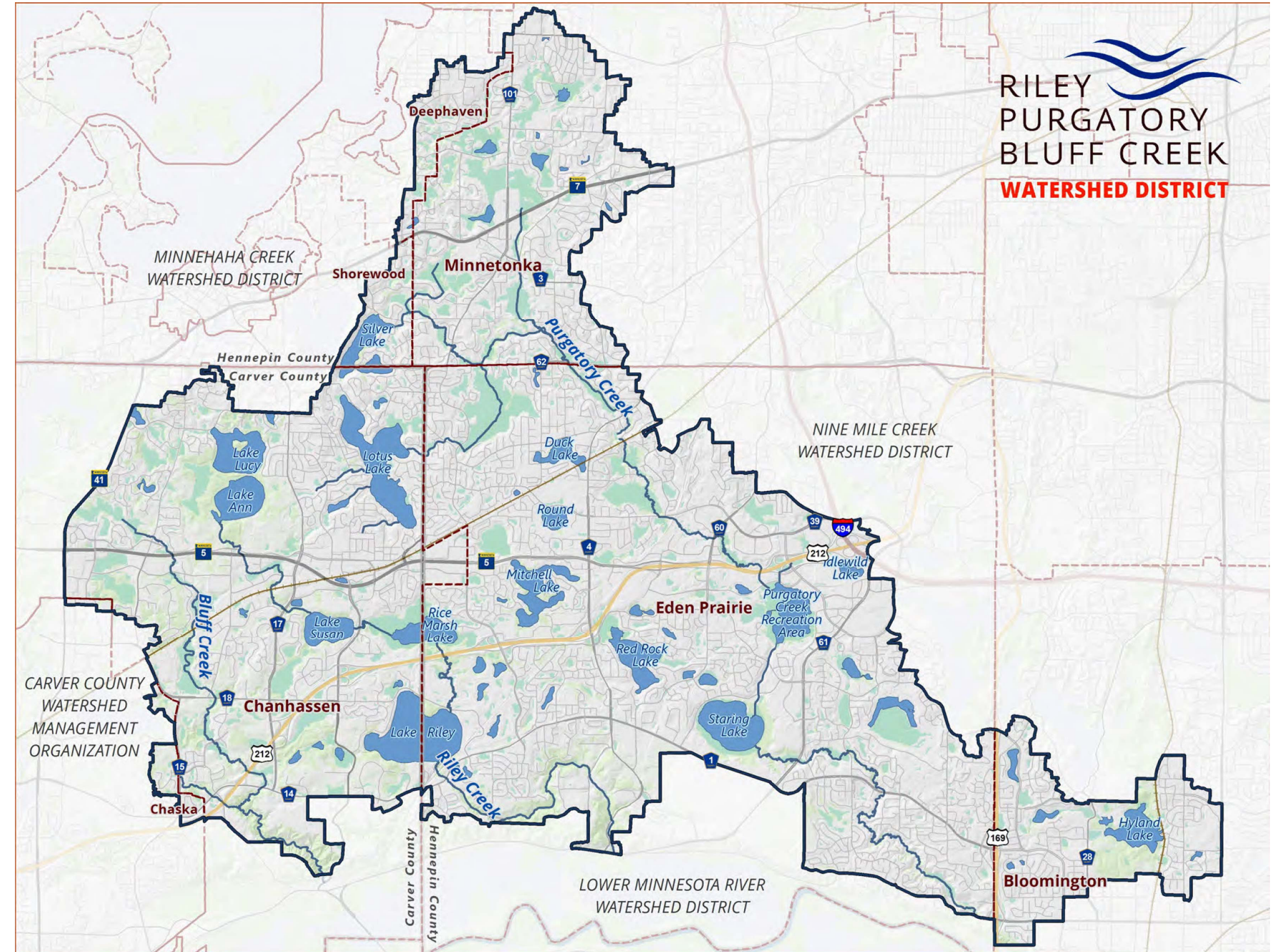


Pre-District

It has been 50 years since the Riley Purgatory Bluff Creek Watershed District was created, but human and geologic forces had been shaping and reshaping the landscape long before that. Explore how today's land and water are a reflection of this past.



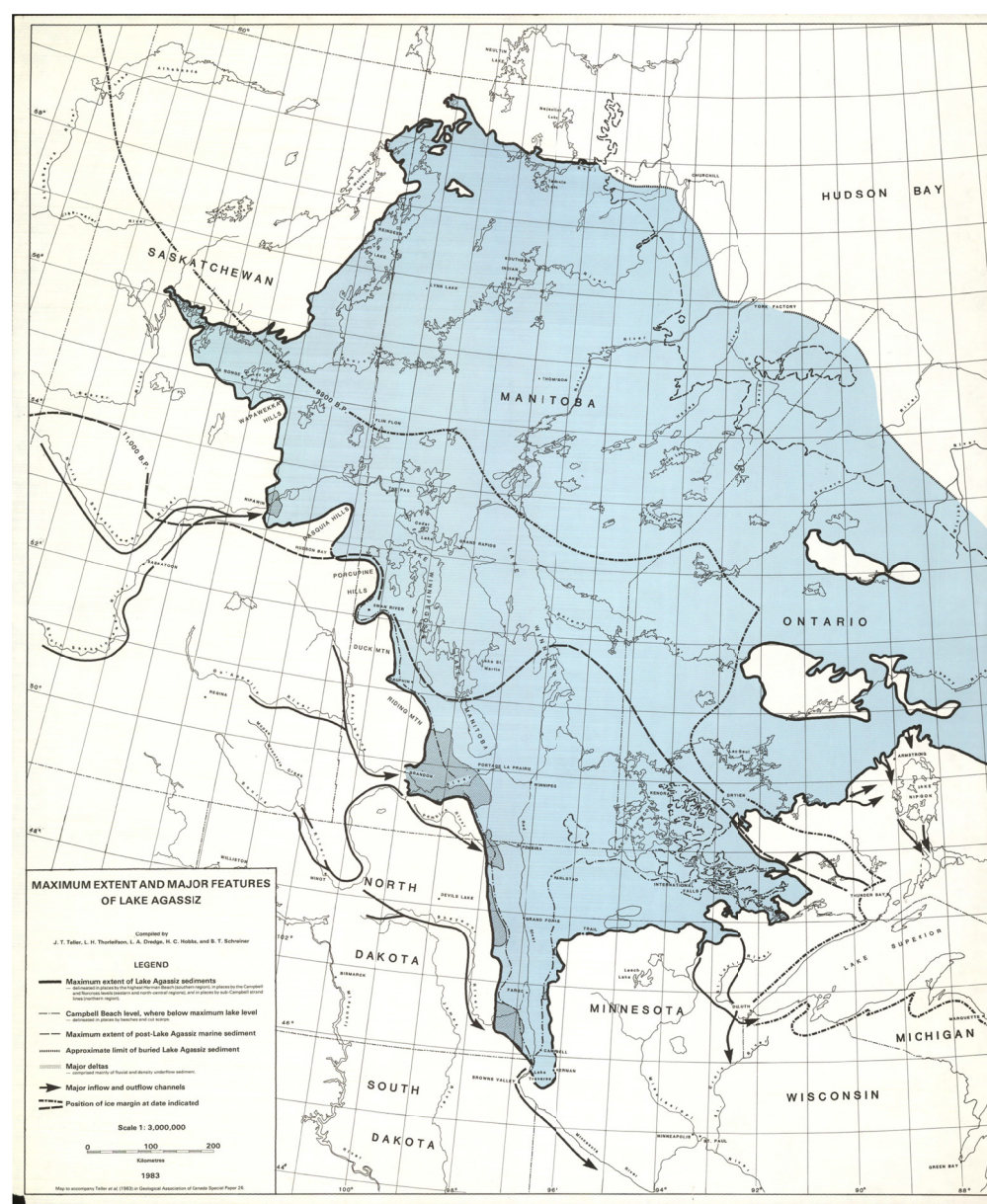
Giant glaciers

The landscape that is now home to the Riley, Purgatory, and Bluff Creeks has been shaped by glacial activity over the past 2 million years. Across this span of time, at least 12 major glacial movements occurred², with the last of the ice retreating from this area about 12,000 years ago.

This melting ice sheet formed the massive glacial Lake Agassiz in Canada, northern Minnesota, and North Dakota. As Lake Agassiz drained through its southern outlet, it created the River Warren-- a large river that carved out the area now known as the Minnesota River Valley¹³. Approximately 7,500 years ago, the lake stopped draining into River Warren and instead flowed east towards what is now Bloomington. As the River Warren slowly receded, it deposited sediments and created smaller creeks, including Riley, Purgatory and Bluff Creeks¹⁴.

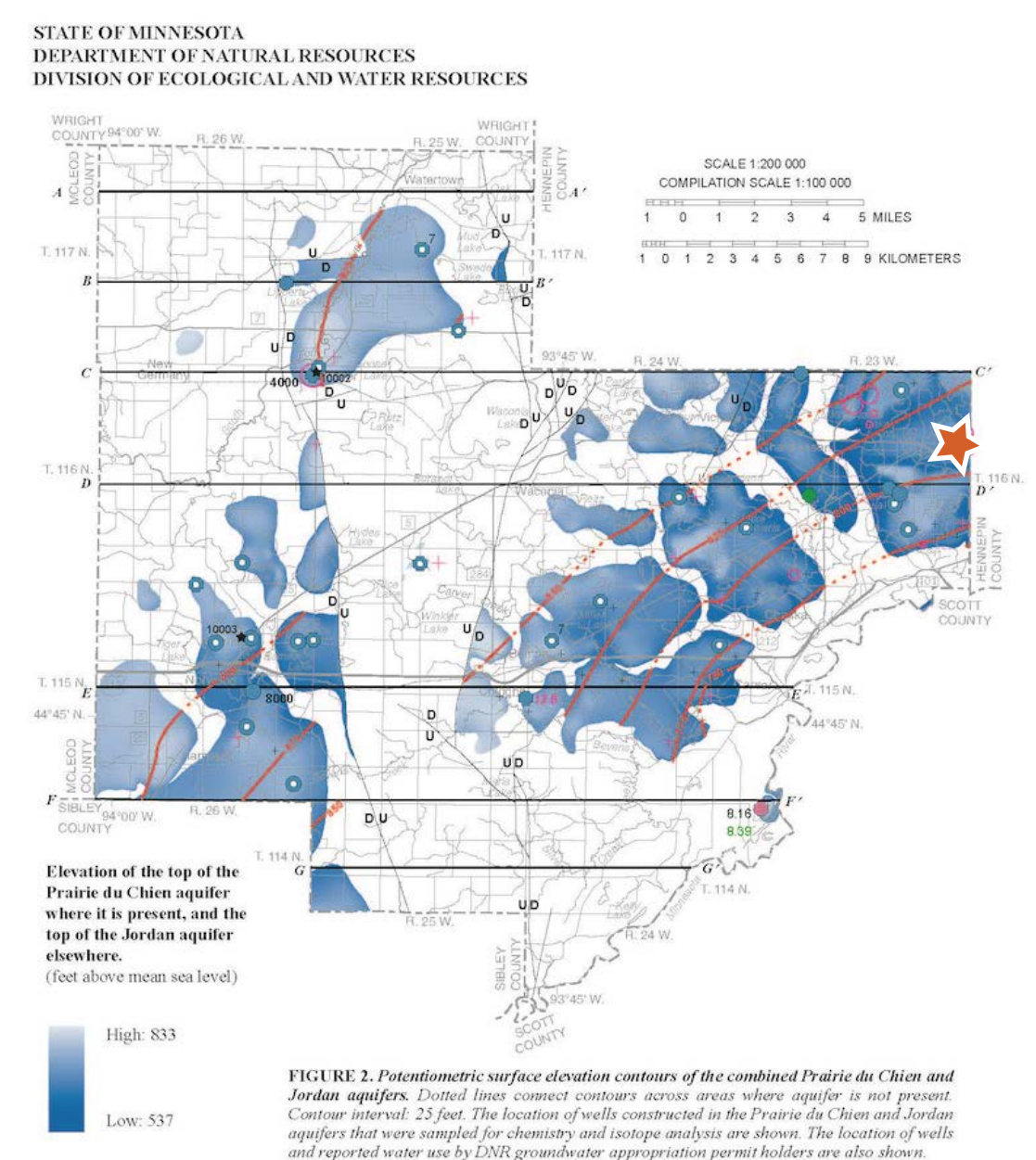
It was these glacial movements that also created most of Minnesota's lakes, including the lakes in this district. As the glaciers retreated, they left behind small patches of ice that melted into lakes, and depressions in the landscape that slowly filled with water. Most of the lakes were groundwater lakes, with no natural inlet or outlet.¹⁰

Glacial Lake Agassiz covered much of Canada, northern Minnesota, and North Dakota around 12,000 years ago. (WC)



Glaciers in Minnesota also left us with one of our most precious natural resources-- groundwater. In this region, groundwater is the main source of drinking water for most cities. The main aquifers are the Prairie Du Chien - Jordan Sandstone aquifers. These are two unique aquifers, but they function as one because, excepting local features, there is nothing that prevents water from one from flowing into the other.⁷

This figure from the Carver County Geologic Atlas²⁹ shows the Prairie du Chien and Jordan aquifers. The watershed district office is marked with a ★



A solid foundation

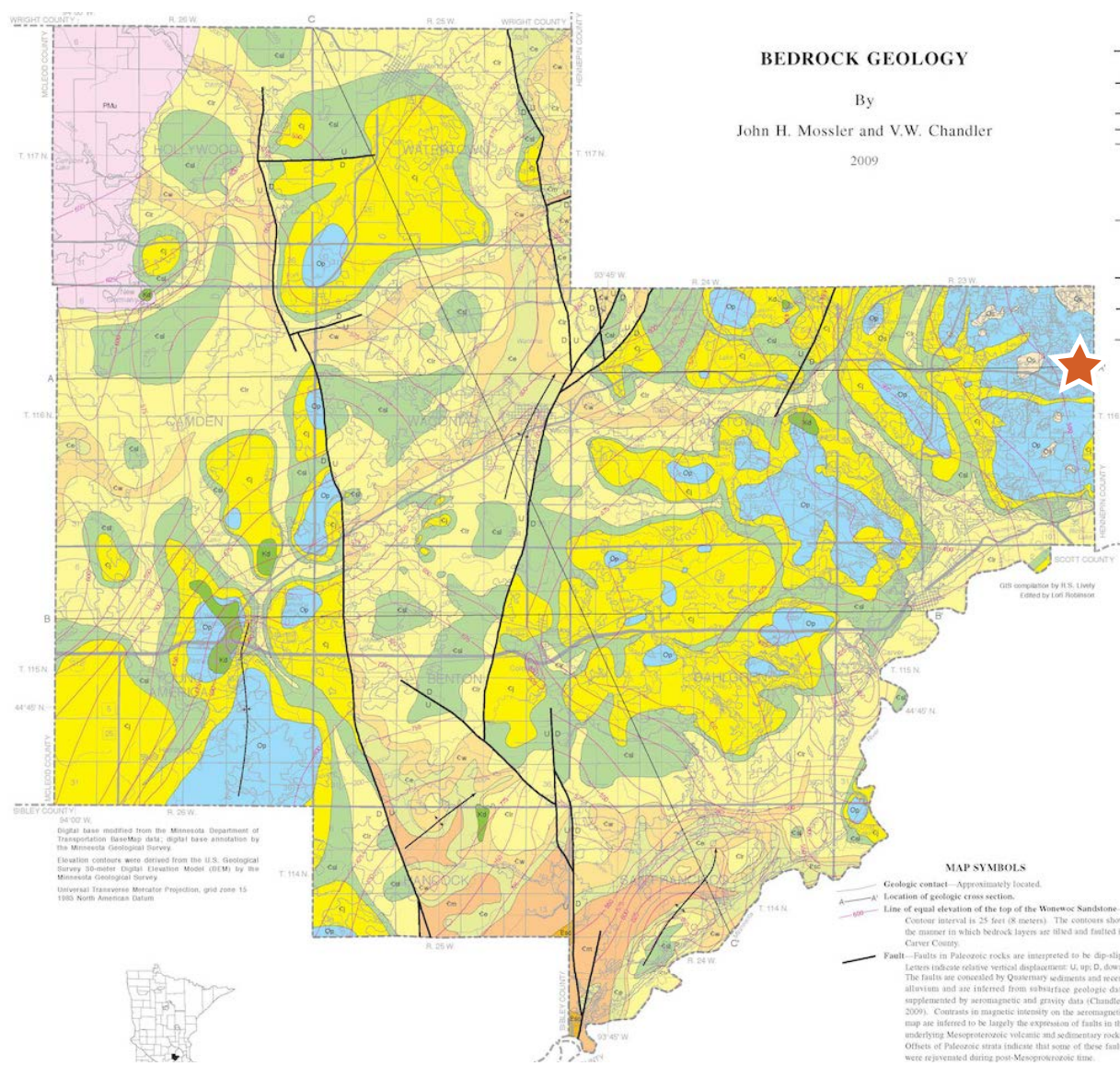
The bedrock of the District has three main layers: St. Peter Sandstone, Prairie Du Chien dolostone, and Jordan Sandstone.

Sandstone is a sedimentary rock, formed as sand is exposed to extreme pressure until it becomes a solid rock. Dolostone is made of dolomite, a carbonate rock that has traces of magnesium and calcium. It forms when water runs through limestone, and is used in concrete and fertilizers¹². The Prairie Du Chien dolostone is thickest in Chanhasen, where it formed roughly 480 million years ago.⁵

This figure from the Carver County Geologic Atlas⁷ shows the bedrock layers of the county.

Blue is Prairie Du Chien dolostone, Yellow is Jordan sandstone, and tan is St. Peter sandstone.

The watershed office is marked with a ★



Land of big woods

Before the land was developed, this area was dominated by oak woodland and maple-basswood forest, with prairie to the east and west¹.

Early European settlers gave it the name "Big Woods," because at that time a continuous maple-basswood forest covered over 3,000 square miles. The boundaries of this forest were in large part controlled by the frequency of fire. The dominant trees were highly fire sensitive and restricted to areas where natural firebreaks such as rivers, lakes and rough topography prevented the spread of fire from the adjacent prairie lands.² Only a small fraction of the original "Big Woods" area remains intact, while the rest of the landscape has been converted for agricultural and residential use. The areas that do remain are fragmented into small patches.³ One such remnant forest patch that exists within the RPBCWD can be found in the Riley Creek Conservation Area in Eden Prairie.

Quick facts

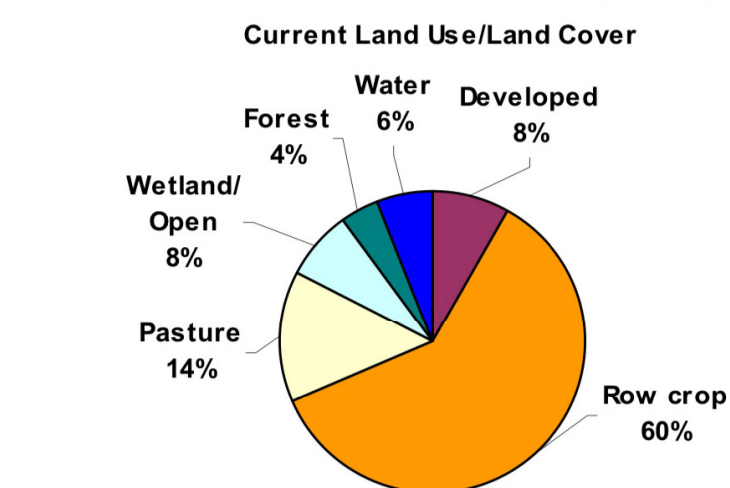
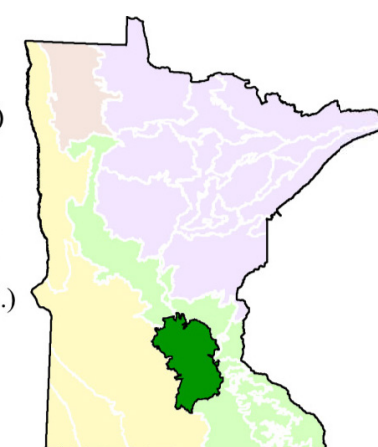
Acres: 2,211,763 (4.1% of state)

Ownership

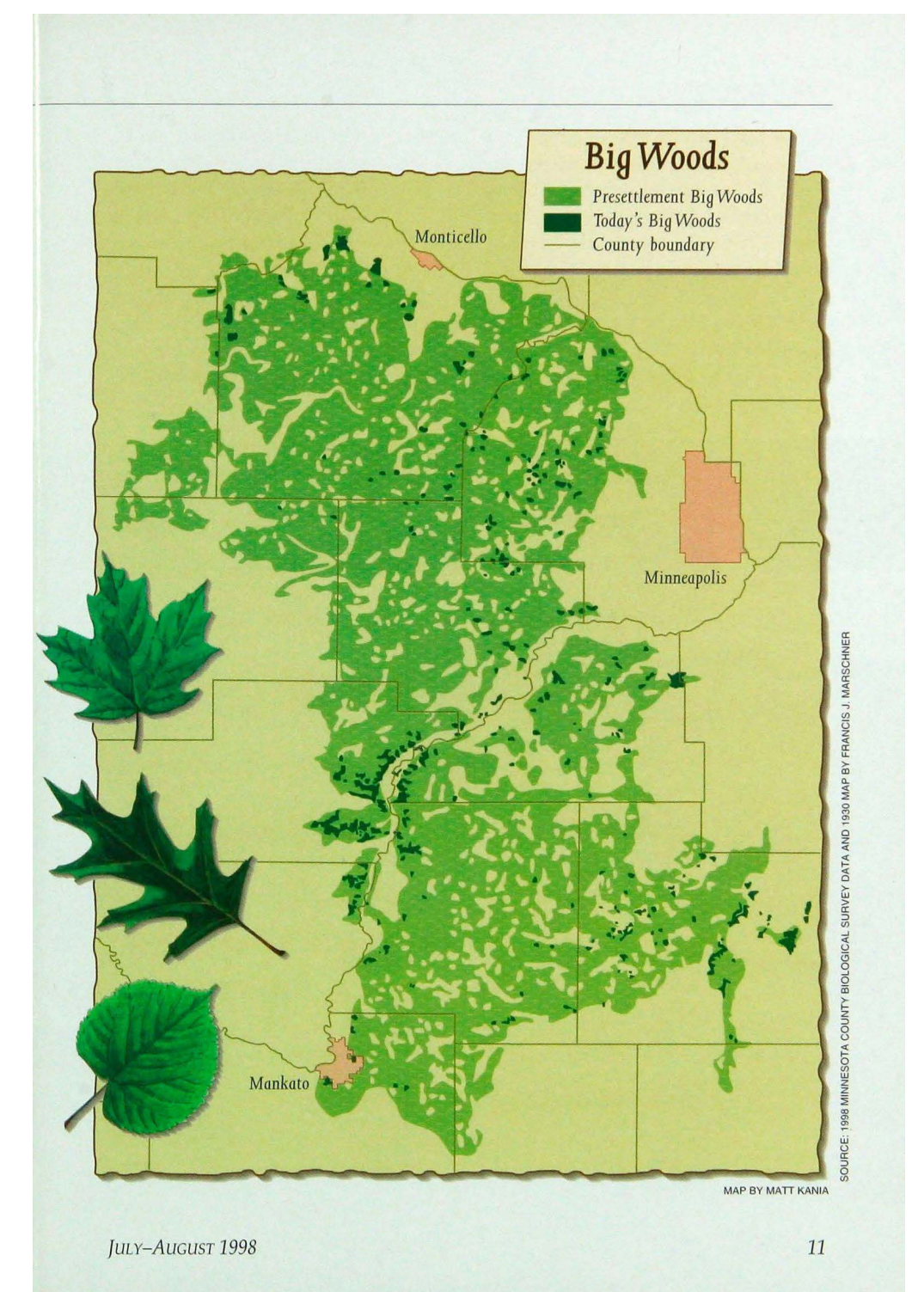
Public	Private	Tribal
3.6%	96.4%	0.0%

Population density (people/sq. mi.)

Current	Change (2000-2010)
415	+55.7



Quick facts about Minnesota's Big Woods area (MN DNR)



Comparison of original Big Woods habitat and remnants in 1998²⁸

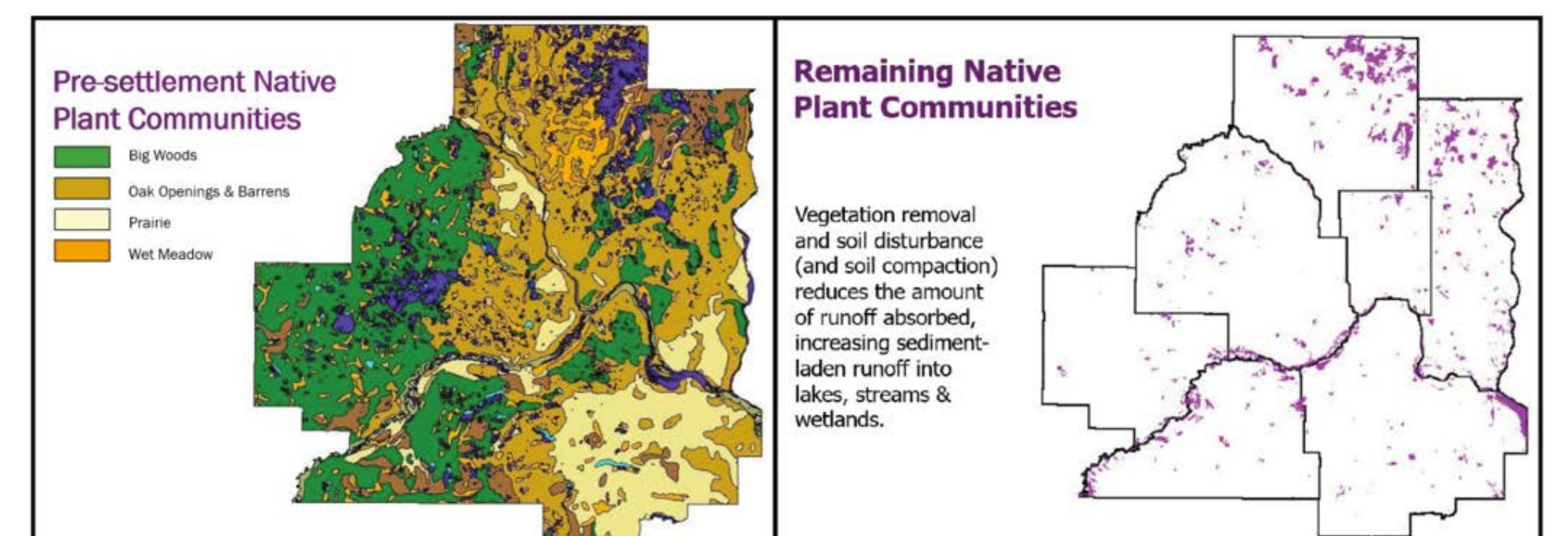
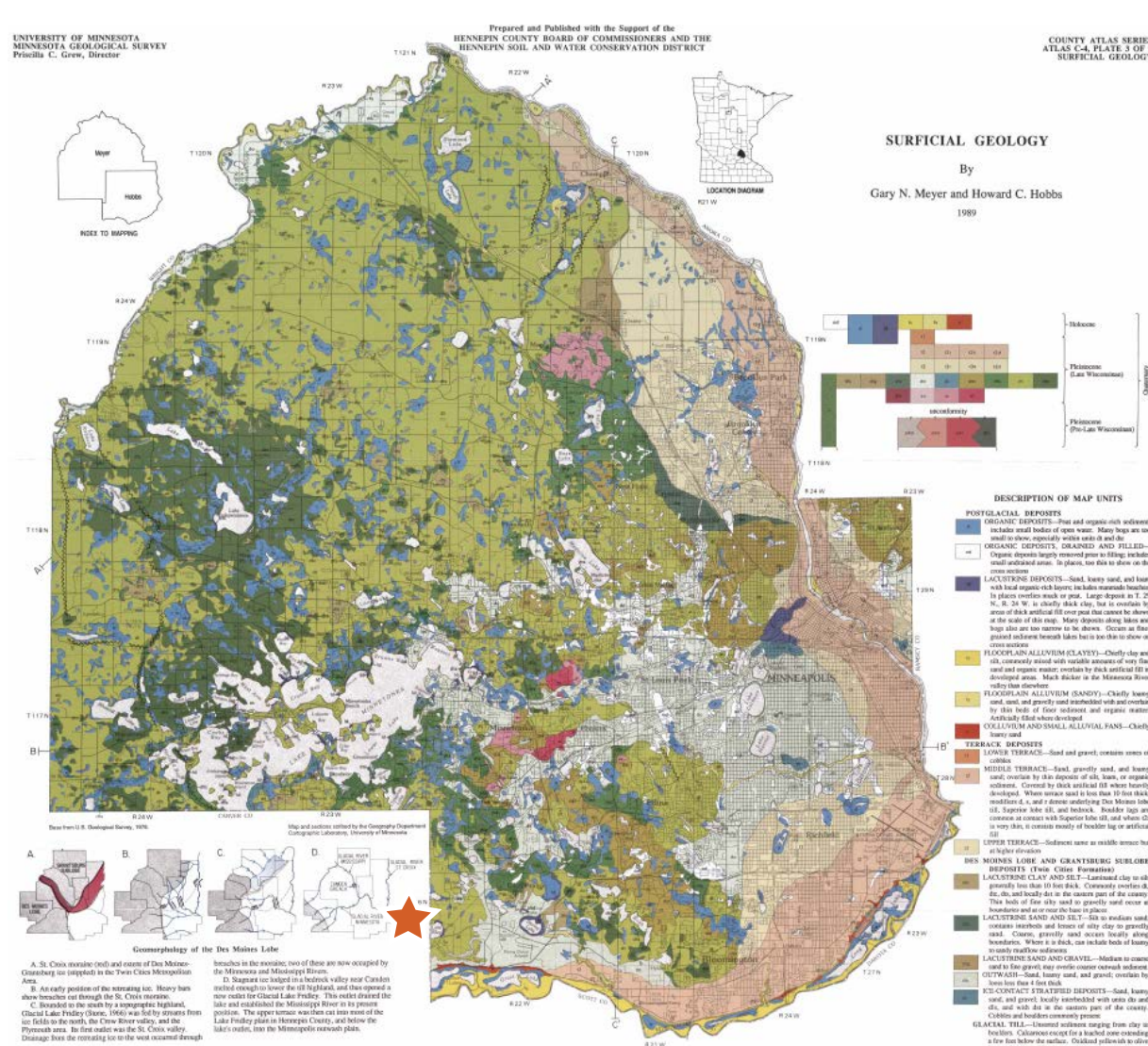
Fertile ground

Approximately 14,000 years ago, the Des Moines Glacial Lobe deposited thick layers of rich soil loam in this area^{2,10}.

This loam (a soil mixture of sand, silt and clay) is a fertile soil, which supported diverse plant ecosystems, and later on, agriculture. The soils in this area are mainly classified as Alfisols (soil developed under trees), with some Mollisols (soil developed under grass). Wetland areas in the region have different types of soil, which is made of organic debris and clay⁴.

This figure from the Hennepin County Geologic Atlas⁵ shows the Soil types of the county.

The watershed office is marked with a ★ and the light green near the star is loamy till.



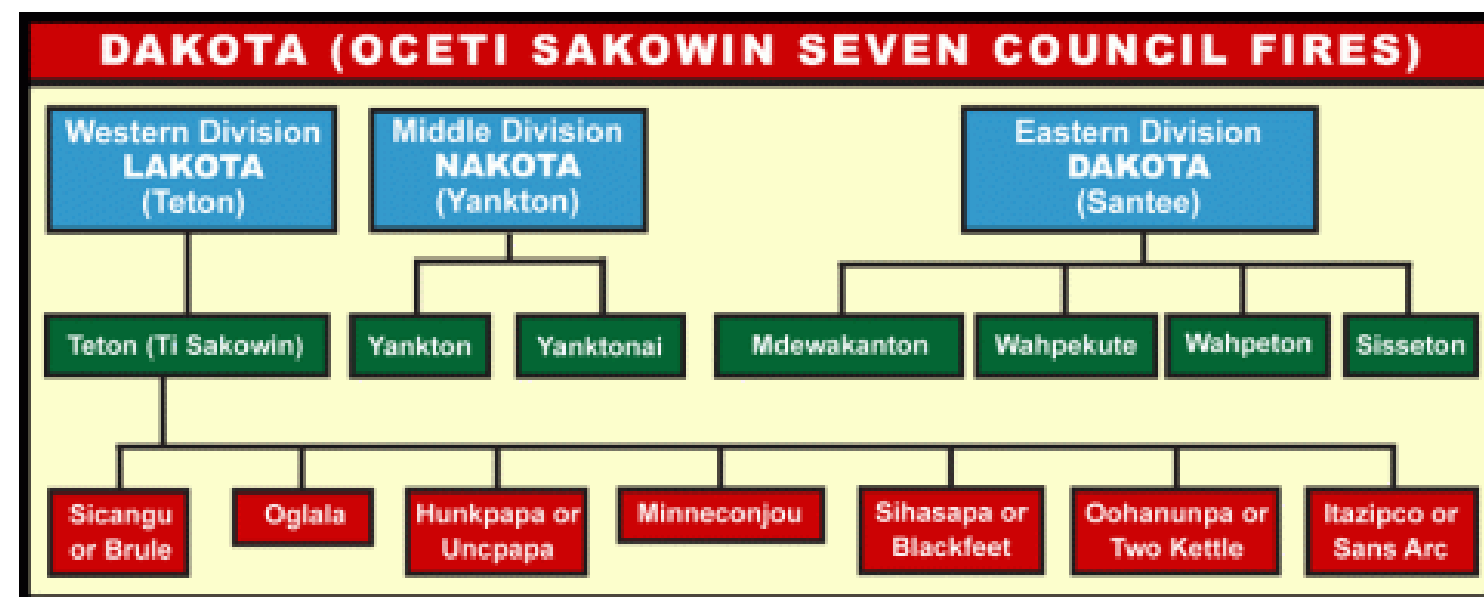
The Dwellers of Spirit Lake

A large part of what we consider the Midwest was home to The Great Dakota (Sioux) Nation, made of up of 7 bands of Dakota, Lakota and Nakota people. Today, tribal governments and communities of The Great Dakota Nation are located in Minnesota, North and South Dakota, Nebraska, and Montana in the United States, and Alberta, Manitoba, and Saskatchewan in Canada¹¹.

One of the seven bands was the Mdewakantunwan (Mday-wahKah-too-wah) Dakota who have lived in this area for thousands of years. The Jeffers Petroglyphs in southwest Minnesota left by the early Dakota date back 7,000 years¹². "Mde Wakan" is translated as "Spirit Lake" and refers to Lake Mille Lacs, while Mdewakantunwan means "The Dwellers of Spirit Lake." Similar to what happened with many tribes, Mdewakantunwan was shortened to Mdewakanton by settlers who had trouble pronouncing the name.



An image from Jeffers Petroglyphs in Comfrey Minnesota. Petroglyphs are rock out-croppings with human-made carvings. The Jeffers Petroglyphs are etched into a 23-mile long quartzite outcrop and are thousands of years old. (WC)



The Mdewakantunwan were one of seven bands in The Great Dakota (Sioux) Nation. (MNHS)

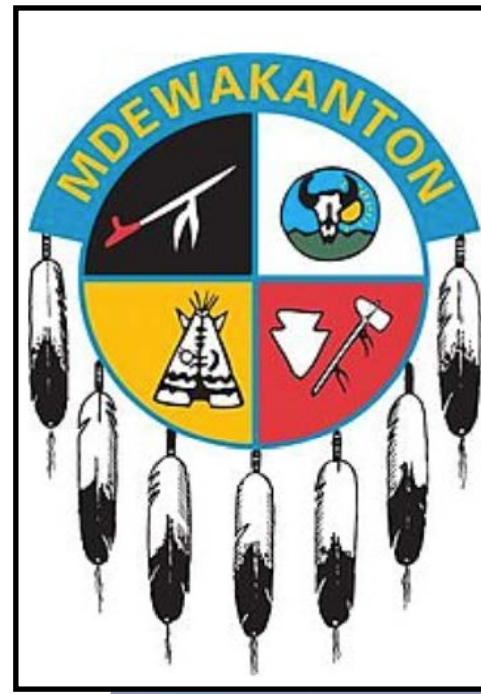
The Shakopee Mdewakanton Sioux Community (SMSC)

The Shakopee Mdewakanton Sioux Community (SMSC) gained federal recognition as a tribal government in 1969¹³. Despite severe systemic disadvantages and attempted cultural annihilation, the SMSC has not only revitalized itself, but has become the largest employer in Scott County¹³.

Though its casinos are perhaps the most famous of the SMSC businesses, they are only two out of more than a dozen projects, all of which are built with sustainability in mind. A common phrase of the Mdewakanton is "for the next 7 generations", which represents the fact that all decisions, especially those involving the land, are intended to be sustainable for future generations. For example, in 2006 SMSC opened the largest green roof water reclamation facility in the Midwest, which collects an average of 11 million gallons of rainwater annually¹⁶, reducing pressure on aquifers and decreasing runoff.

Additionally, the SMSC has invested in public safety departments, infrastructure maintenance, green initiatives, charitable donations and academic scholarships. Since 2007 they have offered a wide range of health services free of charge to several communities throughout the state¹⁵.

Shakopee Mdewakanton Sioux Community Shield (SMSC)



Left: Celebrating culture in formal regalia at the SMSC annual wacipi [wah-chee-pee] (powwow) celebration (SMSC)

Bottom left: Hockokata Ti Cultural Center in Shakopee, MN (SMSC)

Bottom: SMSC Organics Recycling Facility. Through a partnership with the SMSC, the watershed district is bringing invasive carp to the facility to be composted. (SMSC)



European settlement

News of fertile prairies in attracted pioneers who wanted to farm to Minnesota in 1800's. When the first settlers arrived, no official government land survey had been done, but they marked their land by "putting notches in trees or plowing a ditch"¹⁸.

Many settlers were concerned about land titles, and so the government passed the "Preemption Act of 1841" which gave title rights to settlers who occupied and "improved" the land via farming, grandfathering in older pioneers. Most of the local townships had settlers as soon as it was legal in the early 1850s, and it did not take long for this area to become fully occupied. For example, all the land in what is now Eden Prairie was claimed by 1855¹⁸.

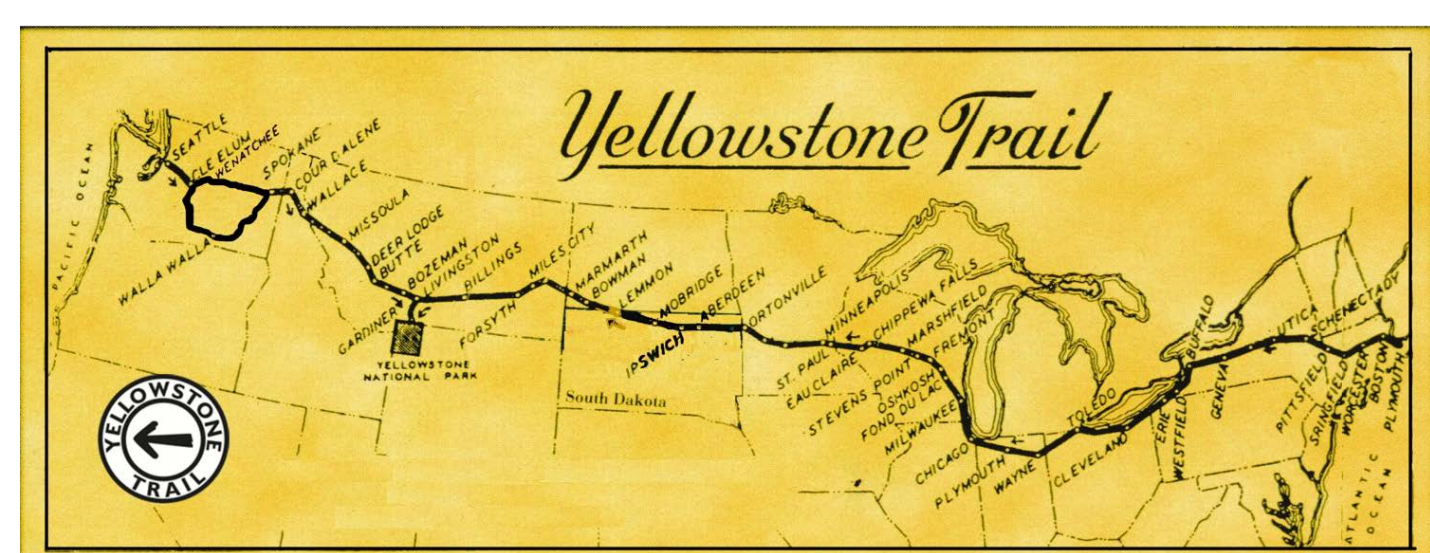
What is now Minnesota was acquired by the United States of America via two separate treaties; land east of the Mississippi was ceded by Great Britain in 1783, and land west of the Mississippi was part of the 1803 Louisiana purchase. Some settlers came after Fort Snelling was built in 1819, but it was the forced removal of the Dakota and Anishinaabe (Ojibwe) and illegal seizure of their lands in the 1850s and 1860s that allowed for large numbers of European-American settlers to move into the area¹⁷.

Yellowstone Trail

When cars were first being used in the United States, there were very few roads for them, and most were poorly maintained wagon trails. In 1912, J.W. Parmley of Ipswich, South Dakota imagined a transcontinental highway for automobiles like the Transcontinental Railroad that first connected the coasts in 1869, and he formed the Yellowstone Trail Association, headquartered in Minneapolis.

The association worked with local citizens and governments to build and maintain a road that stretched from Seattle, Washington to Plymouth, Massachusetts. The "trail" was exclusively for automobiles, so horses were not allowed - unless they were pulling a car from the ditch.

The road went through Carver and Hennepin Counties, along the routes of what are now County Rd. 5, Highway 7, Highway 169 and County Rd 3. In the mid-1920s, interstate highways became more common, and were regulated by state and federal agencies. The need for the grassroots Yellowstone Trail slowly died off, and the Association disbanded in 1930¹⁹.

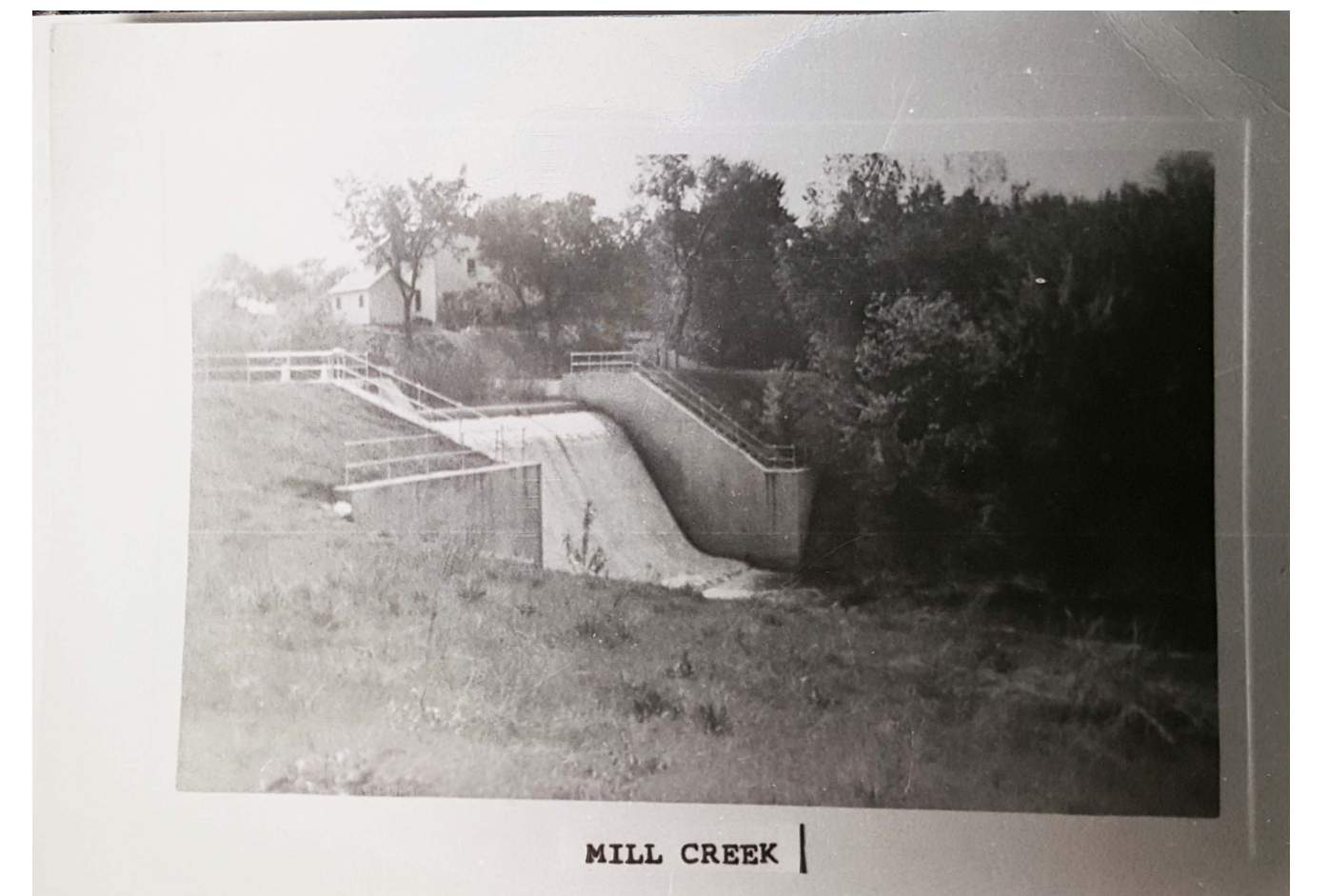


Purgatory Creek Mill

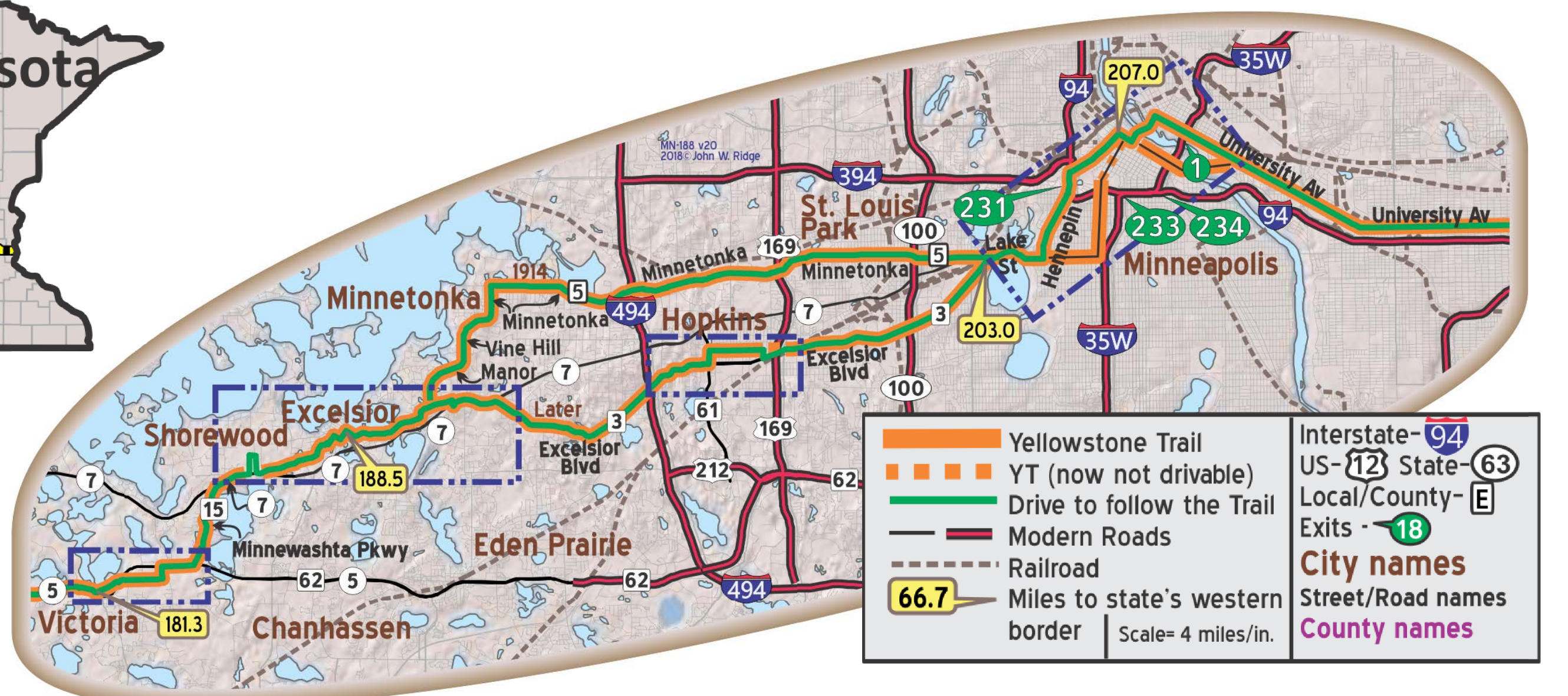
In 1865 Dr. Nathan Stanton built a grain mill on Purgatory Creek just north of Pioneer Trail, which was then called Mill Creek. Historical references give the name Eden Mills, but local residents remember it as the Happy Hollow Mill. In 1867, mill operators planned to dig a channel into a wetland area that is now Neill Lake for extra water, but the plan was abandoned when property owners opposed¹⁸. Instead, they built a dam in the 1870s to try to solve the low water problem¹⁸, but by 1890 the mill was forced to start using steam power¹⁸. The dam was rebuilt in 1955, then removed in the following decades.



Mill Creek Dam in the early 1900s, (EPHS)



The rebuilt mill in 1955, (EPHS)



Maps Courtesy of Yellowstone Trail Association at yellowstonetrail.org