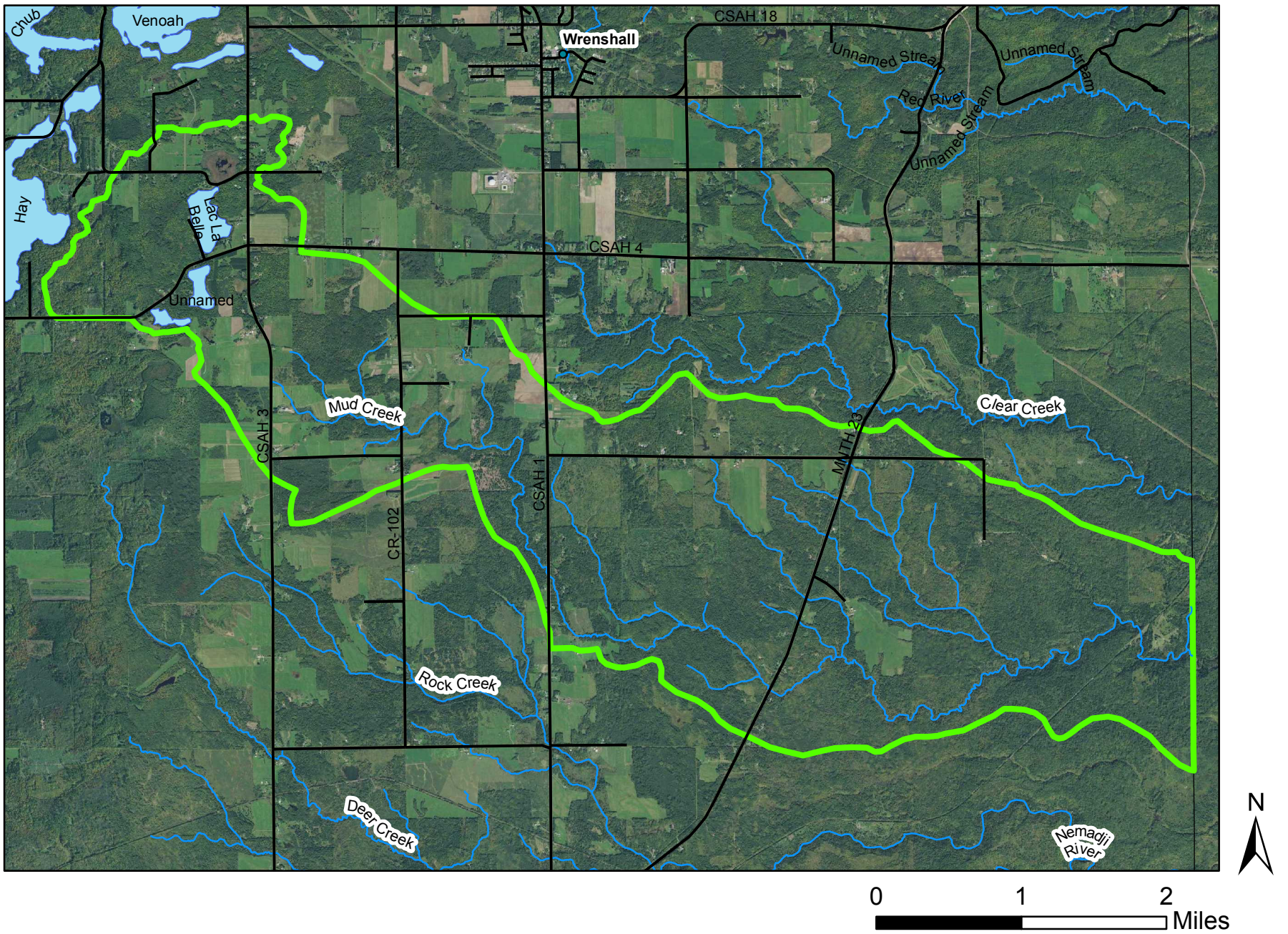
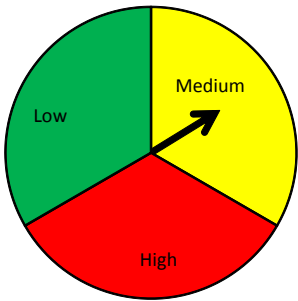


5010 Mud Creek Subwatershed



Disturbed Lands

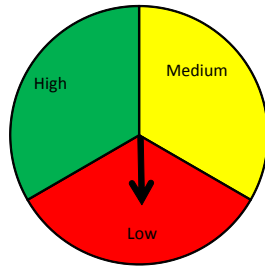


Changes in land use can have large effects on water quality. Roads and parking lots are impervious to water. They allow water to run off the land more quickly, increasing the speed and amount of water flowing over the land. This leads to increased erosion. Farm land can also increase run off and erosion during certain times of the year. Luckily, Carlton County has an abundance of natural land uses, including forests and wetlands.

- **This watershed has moderate land disturbance (8-30%). In this watershed, these changes are mainly from forested to farm land. In general, farm best management practices would help protect and improve water quality.**

Contact the Carlton SWCD to learn what would work best on your farm or property.

Protection



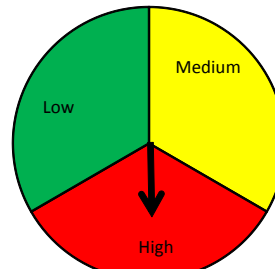
Public lands are considered protected because they are typically managed to protect and preserve natural resources. Carlton County has an abundance of federal, state and county lands that provide habitat to a diversity of species and protect sensitive areas.

Lands can be protected in many ways. Forest management plans, conservation easements and land trusts help ensure natural resources are protected for future generations.

- **This watershed has a low amount of protection (0-20%). Additional protection measures on private lands would benefit water quality.**

If you are interested in learning about way you can protect your property, contact the Carlton SWCD to learn about options.

Soil Risk

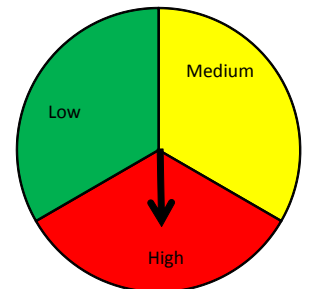


Some soils are more prone to erosion than others. The small particles of clay are easily carried by water. Clay soils are also prone to slumps and slides during high run-off events. The soils of Carlton County are diverse, with the eastern side of the county having more clay and therefore more erosion problems. Different tree and other plant species prefer different soils, so it's important to consider soil type before you plant.

- **This watershed has highly erodible soils that pose a risk water quality.**

If you have problems with erosion on your property or need some tree planting assistance, contact the Carlton SWCD.

Risk



Risks to water quality can come from many different sources. Development, land use, invasive species, soil type and slope are all possible contributors. Watersheds with higher risks require more restoration measures to improve water quality. Depending on the stressors involved, that could be accomplished in a variety of ways, from fencing livestock out of impaired waters to creating rain gardens in urban watersheds. For lower risk watersheds, protection methods can help maintain water quality. Protection can come from conservation easements or forestry planning.

- **This watershed has high risks. Restoration measures are needed to help improve water quality.**

The Carlton SWCD is here to help you improve water quality on your property, whether it is protection or restoration. Contact us with your questions!

Outstanding Resources

Golden Winged Warbler
Trout

Water Quality Concerns

Impaired Lake (Lac La Belle)
Impaired Stream (Mud Creek)



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Major Watershed : Nemadji

The Nemadji River watershed spans the Minnesota-Wisconsin border and covers 1,180,073 acres. The Minnesota portion of the watershed is about 178,000 acres and is located in the Northern Lakes and Forest Ecoregion. That area is dominated by glacial till in ground moraines and drumlins and highly erodible lake-laid clay soils. The Nemadji River and its many tributaries are the main river system within the Minnesota watershed area. It flows 65 miles from its headwaters in Pine County, through Carlton County, and then crosses into Wisconsin, finally exiting into Lake Superior within the city of Superior. Other communities in the watershed's Minnesota portion include Carlton and Wrenshall.

