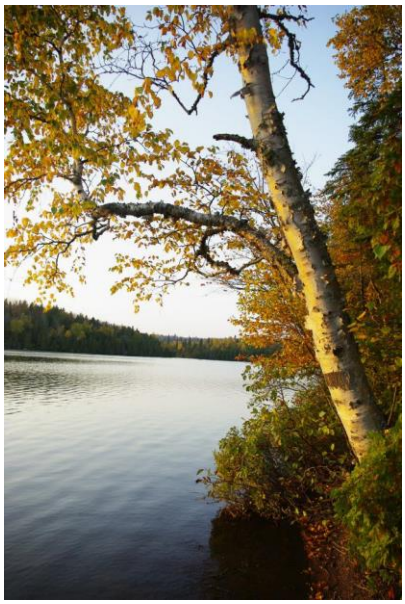
Natural Resources



The natural environment is among Rice Lake's most important assets because it provides recreational and economic opportunities as well as habitat for fish and wildlife. Protection and enhancement of natural resources can directly benefit people through protection of drinking water sources and supporting industries such as tourism and forestry. Quality of life is also better, which is attractive to potential residents and increases land values. The challenge for the community is to adopt and implement regulations and programs that accommodate land uses while conserving the quality of the natural environment. Consideration should be given to:

- Removal and prevention of the spread of both aquatic and terrestrial invasive species
- Encouraging the protection and enhancement of native plant habitats
- Elimination and reduction in pollution that impacts groundwater and is carried by rainwater and snowmelt runoff into streams and lakes

Goals and Objectives

The overall goal of the City of Rice Lake is to protect and enhance natural resources such as lakes, forests, and wildlife.

Goal: Design future development to prevent encroachment into wetlands and other sensitive natural areas.

Objective:

- Identify and preserve sensitive natural habitat areas and corridors.
- For all zoning and subdivision applications (including beyond shoreland areas), ensure that grading and site plans will preserve as many natural features as possible.
- Direct residential development toward areas with soils suitable for septic installation as permitted in the subsurface sewage treatment systems (SSTS) ordinance.
- Ensure development density is appropriate given the soil characteristics of each site.

Goal: Ensure high water quality for surface water and groundwater and adequate supply of water for future use.

Objective:

- Protect water quality by implementing policies or education initiatives to reduce runoff and pollution such as nutrients, bacteria, and chemicals.
- Educate residents and visitors about aquatic invasive species prevention.

- Protect shorelines with naturally vegetated buffers that reduce erosion in addition to protecting water quality.
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Goal: Ensure healthy forests to benefit the community by providing ecological services such as improved air and water quality, providing noise and privacy buffers for residences, and providing habitat for wildlife.

Objective:

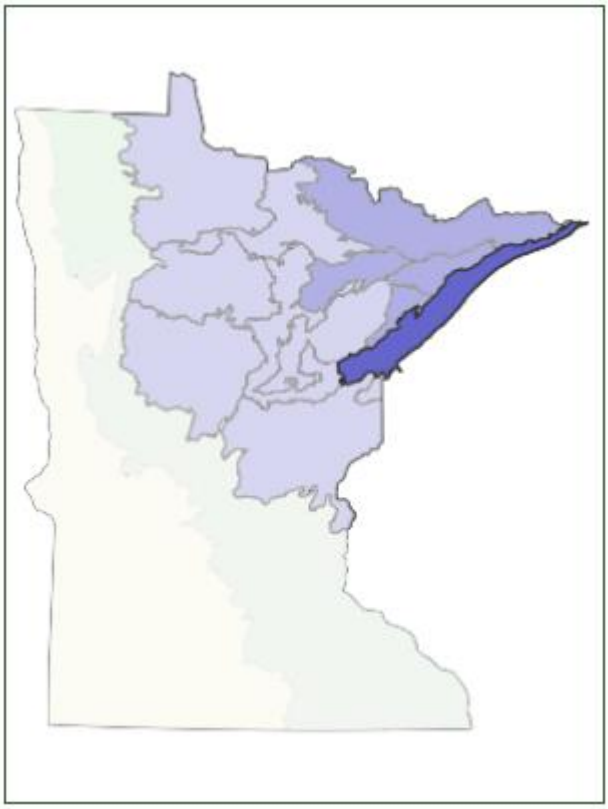
- Prevent the spread of invasive insects such as Emerald Ash Borer and Gypsy Moth and invasive plants such as Common Buckthorn and Garlic Mustard.
- Encourage sustainable timber harvest practices.
- Actively manage forests using native herbaceous plant seeding, controlled burns, tree seedling planting and protection, and other tools.

The Landscape

Sculpted by glacial activity that occurred over 10,000 years ago, the topography of the area ranges from gently rolling to some steep areas with greater than 12% slope. There is a difference of approximately 300 feet between extremes. The land is highest in the mid-north, middle, and southwest. The highest point in the City (1,470 feet above sea level) is located to the west of the intersection of Rehbein and Arnold Roads.

The Minnesota Department of Natural Resources and U.S. Forest Service developed an Ecological Classification System for Minnesota. These classifications are used to describe areas of land with uniform ecological features. The City of Rice Lake lies within the North Shore Highlands Subsection of the Northern Superior Uplands Section within the Laurentian Mixed Forest Province (see Figure NR-1). This ecological subsection is characterized by bedrock outcroppings, lakes, and typically shallow deposits of coarse, loamy soils. Aspen-birch forests dominate the area with minor amounts of white and red pine, mixed hardwood-pine, and conifer bogs and swamps. Jack pine forests are present along dry ridges and bedrock outcroppings. Along Lake Superior, forests are dominated by sugar maple with some white pine, yellow birch, and white cedar.

Figure NR-1 – North Shore Highlands Subsection



Source: Minnesota DNR

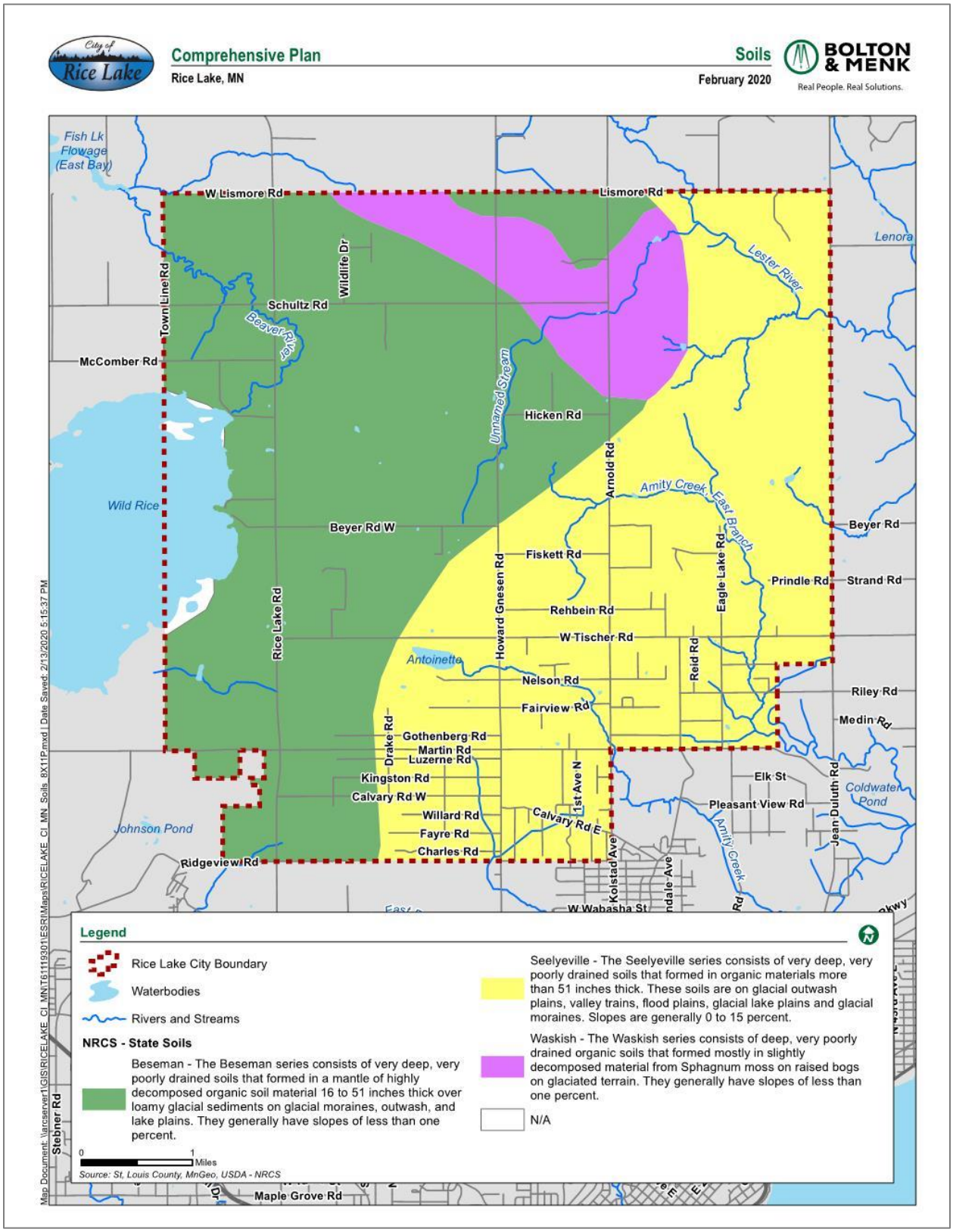
The area is one of the most important migratory corridors for birds in the entire Midwest. Songbirds, raptors (hawks, eagles, and falcons), and other birds travel along the North Shore as they migrate in fall and spring. Nearby Hawk Ridge Bird Observatory is a popular location for locals, tourists, and scientists to observe the fall migration of raptors as they move from summer breeding grounds to wintering destinations.

Soils

Detailed soil data is a useful tool for evaluating proposed land use developments. Typical soil depth is shallow, and bedrock outcroppings are common. Most of the soils are composed of either terminal or ground moraines. Terminal moraines, formed when glaciers remain stationary for long periods of time, consist of gravel mixed with finer materials deposited in irregular depths. Ground moraines are formed by the deposits of moving glaciers and consist of a thin cover of sand, gravel and boulders over a bedrock base. Three basic soil types are found in Rice Lake. The first type is found primarily in the northern half of the town and around Rice Lake Reservoir and consists of numerous peat bogs. Peat bogs are decomposing accumulations of aquatic vegetation and are found in low-lying areas with poor drainage. The thickness of these deposits may range from 18 inches to several feet. The other two soil types are silt loam and fine sandy loam. Both were formed by glacial moraines, and consist of sand, gravel, and coarser rock materials.

One feature of soil, which is important in the planning process, is its ability to support on-site wastewater treatment systems (e.g. septic systems). All of Rice Lake's soil types possess severe limitations for on-site wastewater treatment due to slow permeability and the possibility of seasonally high-water tables. As a result, the on-site wastewater treatment systems in the City require special design or maintenance. These soil restraints do not totally restrict future development in these areas but must be seriously considered as an important element in land use control.

Figure NR-2 – Soils Map



Surface Water

Lakes, ponds, wetlands, streams and other water features are important resources for any community and deserve a high degree of attention. This is especially true in Rice Lake, as the headwaters of multiple waterways are located within the community. Wild Rice Lake Reservoir and Antoinette Lake provide additional water resources; ideally, these natural waterways should be the backbone of a community's storm drainage and open space system and be allowed to remain in their natural state. Wetlands should also be preserved because they serve the important function of storing or retaining snowmelt or run-off during wet periods, reducing the risk of flooding by slowly releasing water as stream capacity allows.

The eastern half of Rice Lake lies within the Lake Superior – South Watershed. Tischer Creek, Amity Creek, the East Branch of Amity Creek, and Lester River drain the eastern half of the town and flow through the City of Duluth into Lake Superior. The Beaver River and two small creeks drain the western portion of the township, eventually flowing into the Cloquet River. Miller Creek drains a very small portion in the southwest corner of the community and eventually flows into the St. Louis River. Because of these watershed connections, protecting water quality within Rice Lake benefits not only the City's residents but other people as well.

Figure NR-1 – Watershed Districts