



Section 3. Priority Issues

“Issues” are concerns or opportunities that can be addressed to protect or restore natural resources in the watershed. Developing priority issues forms the basis of the rest of the planning process.

The priority issues were developed by compiling issues from existing plans and studies; developing and revising the information at Public, Steering, Advisory, and Policy Committee meetings; and then determining priority issues (Figure 2.1).

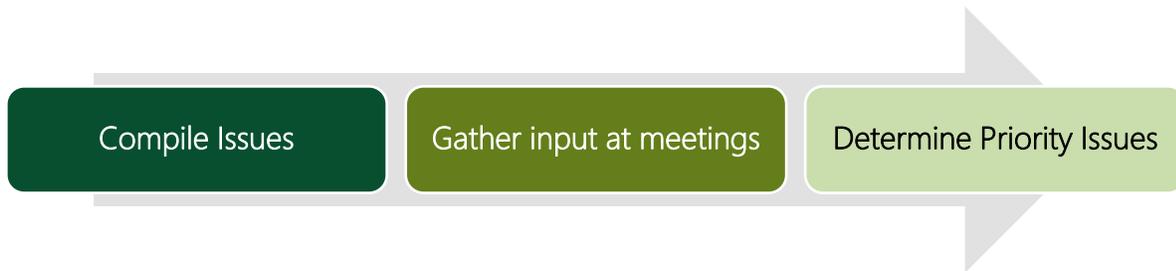


Figure 2.1 Steps taken to arrive at priority issues.

Issue Compilation

First, issues were compiled from existing plans, studies, and input, including:

- Roseau River Watershed Restoration and Protection Strategy (WRAPS) and supporting documents (Stressor Identification, TMDLs, Monitoring and Assessment reports)
- Roseau River Watershed District Overall Plan
- Roseau County Local Water Management Plan
- Roseau River Watershed International Plan
- Agency responses to 60-day plan notification (MPCA, BWSR, MDA, MDH, and DNR)

These issues were split into Resource Categories for ease in understanding (Table 2.1).

Table 2.1 Resource Categories in the Roseau River Watershed.

Resource Categories			
			
Surface Water	Agricultural Productivity	Natural Resources	Ground-water



Gather Input at Meetings

The watershed-wide issues list was revised and prioritized with information developed at meetings.

Public Input

Public input was gathered at an Open House in December of 2021. At the Open House, participants were asked to identify their top three concerns for the watershed (Figure 2.2). Top concerns were runoff and flooding, soil health, drainage system management, and groundwater quality. These priorities were considered by the Steering and Advisory Committees, and all have been included as priority issues in the plan.

Advisory Committee Input

At the March Advisory Committee meeting, watershed issues were brainstormed by meeting participants. These issues were then matched with issues compiled from existing plans and studies, resulting in a watershed-wide list encompassing 17 issues.

Steering Committee Input

The Steering Committee determined the final wording of the issues list and provided input and data for the prioritization process.

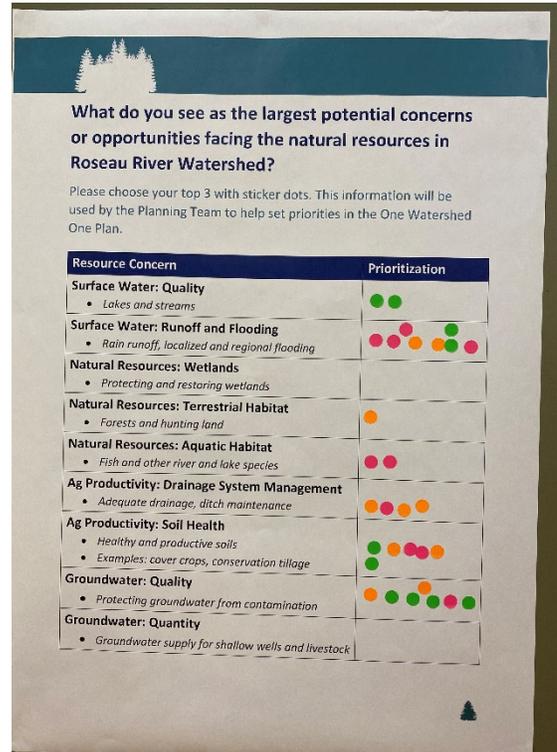


Figure 2.2 Public ranking of issues in the Roseau River Watershed.



Flooded farm field in spring 2022



Determine Priority Issues

Staffing and funding resources for addressing issues are limited, so prioritization helps determine where to focus resources over the next 10 years. In April of 2022, the Steering Committee prioritized the issues by Planning Region to determine where to focus geographically (Figure 2.3, Table 2.2).

Planning Regions

Planning Regions are helpful for focusing on specific concerns in specific regions of the watershed. Each Planning Region is based around a primary river or stream and similar land use.

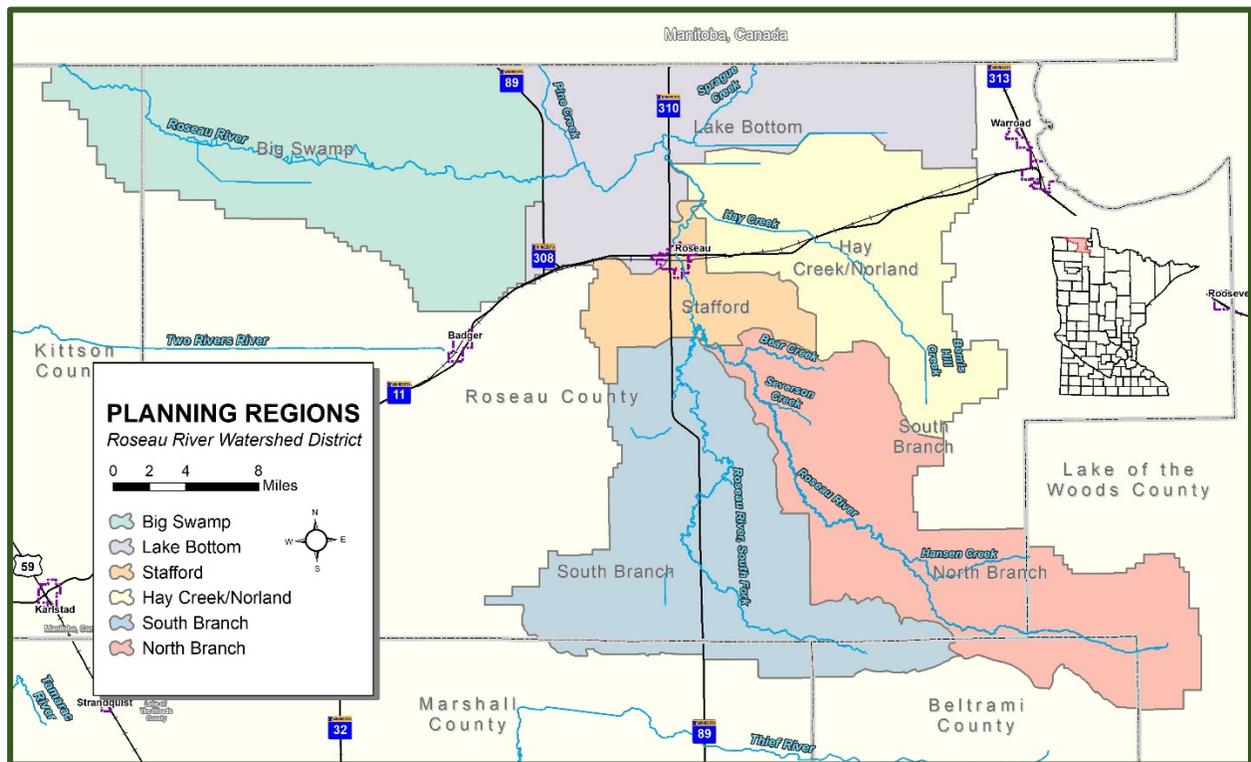


Figure 2.3 Planning Regions in the Roseau River Watershed.

Table 2.2 Planning Regions in the Roseau River Watershed.

Region	Description
Big Swamp	Encompasses the Roseau River and is mainly under state ownership and managed for wildlife production and forestry.
Lake Bottom	Encompasses the historical Roseau Lake Bed and provides flood storage.
Stafford	Includes the city of Roseau and the Roseau River. Land uses are urban and agricultural.
Hay Creek	Has been modified with legal ditches and is mainly in agricultural land use.
South Branch	Begins in wetlands and transitions to agricultural land moving north.
North Branch	Begins in the peatlands of the Beltrami Island State Forest and transitions to agricultural land moving north.



Prioritization

The Steering Committee considered each watershed-wide issue and assigned it an A, B, or “as opportunities arise” ranking for each planning region based on its prevalence in the region and ability to make measurable change in implementation. Data sources and maps were used to justify these rankings. Any issue that received a Priority A ranking in at least one planning region was considered Priority A overall in the plan. Any issue with only B or “as opportunities arise” rankings was considered Priority B overall in the plan. Any issue with only “as opportunities arise” ranking is not a priority for plan partners, but could be addressed in the future (Figure 2.4).

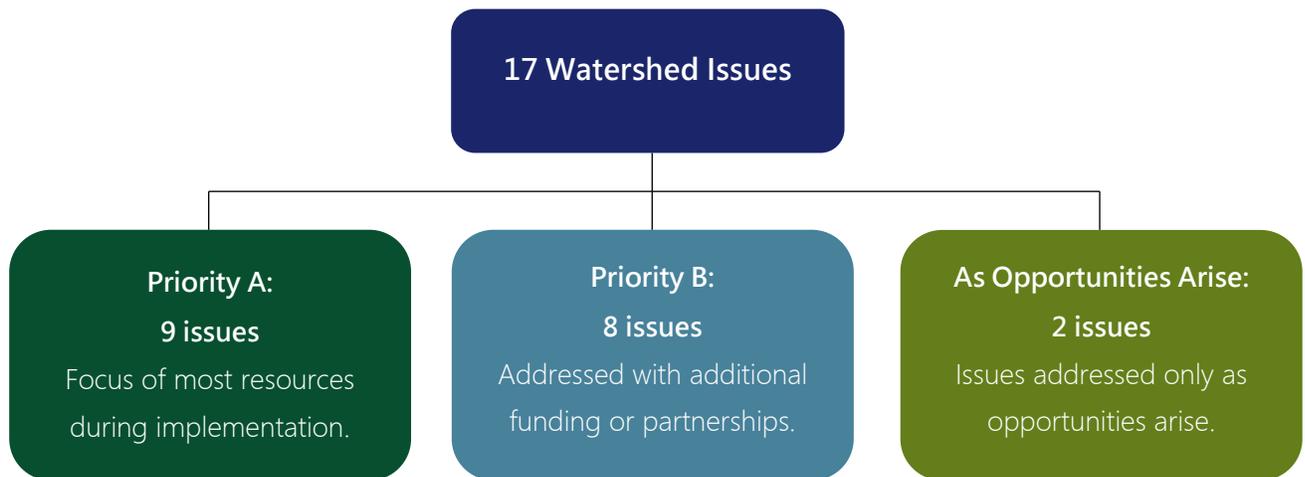


Figure 2.4 Issue prioritization categories.

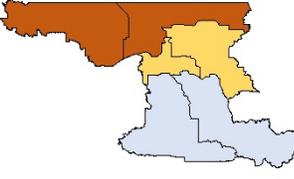
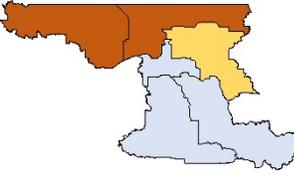
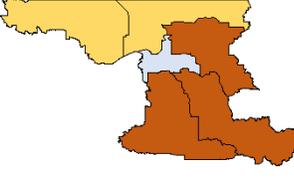
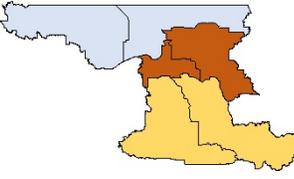
The Advisory Committee reviewed and revised the issue prioritization in May, and the Policy Committee reviewed and approved it in June. The individual issues and their planning region prioritization are presented in the next few pages.



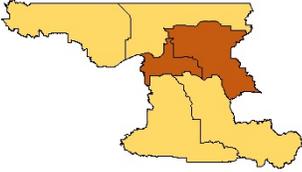
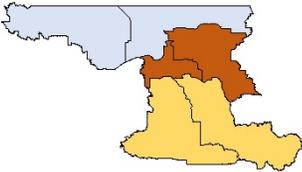
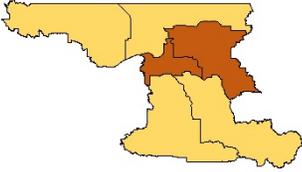
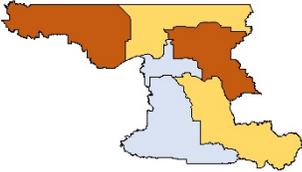
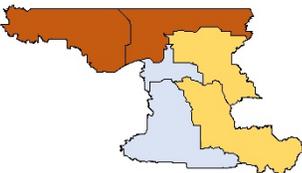
Priority A Issues

Priority A issues will be the focus of initial implementation efforts during the 10-year plan. Planning regions are prioritized as high, medium, or as opportunities arise based on the prominence of each issue in that planning region.

Planning Region Prioritization Key:  = high priority  = medium priority  = as opportunities arise

Resource Category	Resource Concern	Issue	Planning Region Prioritization	Description
	Surface Water Quantity	Flooding		Flooding is a common issue in the watershed that can be improved by increasing storage capacity, constructing flood control measures such as levees, clearing excess debris, expanding floodplain connectivity, and replacing undersized culverts.
	Drainage System Management	Inadequate drainage		In some areas of the watershed, there is a concern that cropland drainage could be improved to increase productivity as well as the removal of woody debris and replacement of undersized culverts which contribute to flooding.
	Drainage System Management	Drainage system instability		Channelization can cause incision and streambank failure leading to sedimentation and other water quality and habitat issues. Maintenance and restoration can mediate these problems.
	Soil Health	Declining health and productivity of soils		Topsoil and soil organic matter loss has a major impact on soil health and productivity. Practices such as reduced or no-till and cover cropping can help to retain soil on the land and build soil organic matter.



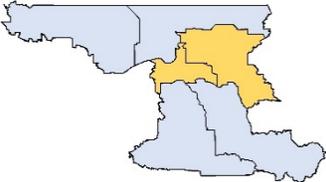
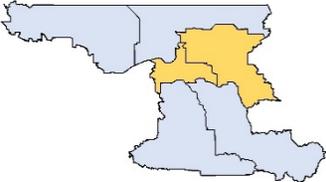
Resource Category	Resource Concern	Issue	Planning Region Prioritization	Description
	Surface Water Quantity	Altered hydrology		Altered hydrology occurs when water storage on the landscape is reduced due to land use changes and water is moved across the landscape more quickly leading to both flashiness and low base flows.
	Surface Water Quality	Sediment loading (wind and water erosion)		Sedimentation in streams comes from overland erosion from lands lacking in vegetation. The Roseau River Watershed has a turbidity/TSS impairment in Hay Creek, which can impact aquatic habitat, recreational opportunities, and agricultural productivity.
	Surface Water Quality	Stream instability and bank erosion		Stream instability and in-channel and bank erosion can occur from upstream erosion, channelization, flashiness or increased runoff, and poor riparian buffers. The issue contributes sediment to waterways and decreases the quality of aquatic habitat.
	Aquatic Habitat	Insufficient instream habitat		Instream habitat can be affected by channelization, sedimentation from erosion, land use changes, low base flow, flashiness, etc. The removal of woody debris also impacts flow regimes and fish and wildlife habitat and life stages.
	Wetlands	Degradation of wetlands/peatlands		Wetlands in the region have been drained for agriculture, resulting in flashiness and flooding due to a loss of storage and decreased habitat. Invasive species such as cattails overtake existing wetlands and peatlands, further reducing habitat quality.



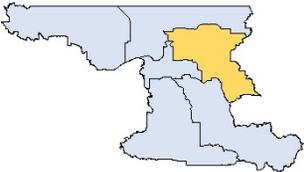
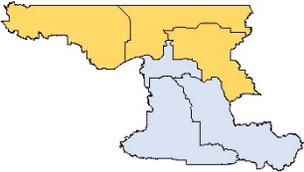
Priority B Issues

Priority B issues will be addressed during the 10-year plan, likely with additional funding and/or with partners. Planning regions are prioritized as medium or as opportunities arise based on the prominence of each issue in that planning region.

Planning Region Prioritization Key: ● = medium priority ○ = as opportunities arise

Resource Category	Resource Concern	Issue	Planning Region Prioritization	Description
	Groundwater Quality	Contamination of public and private water supplies		Potential contaminants include but are not limited to arsenic, <i>E. coli</i> , and nitrate. Sources include failing septic systems, abandoned wells, and land use practices.
	Groundwater Quantity	Changes in groundwater quantity		Concerns include the need for irrigation, gravel pit mining, and drought as a potential emerging concern. The surface-groundwater connection is a concern, with low base flows resulting from inadequate recharge impacting aquatic habitat.
	Surface Water Quality	Excess nutrients		Nitrogen and phosphorus are essential nutrients for plant growth but when there is an excess in the water, they can cause harmful algae blooms and other water quality and habitat issues. These nutrients are the result of both plants breaking down during decomposition, fertilizer application on agricultural land, feedlots, and sewage systems.



Resource Category	Resource Concern	Issue	Planning Region Prioritization	Description
	Surface Water Quality	Excess bacteria		Bacteria in the water can come from animal or human waste, specifically from leaking septic systems, WWTFs, feedlots, and livestock close to streams, making waters unsafe to swim in and drink from.
	Aquatic Habitat	Fish passage and connectivity		Barriers to fish passage and instream habitat connectivity include dams, culverts, and bridges. Modification of these barriers can expand fishing, boating, and swimming opportunities.
	Terrestrial Habitat	Preservation of unique natural resources		Unique natural resources in the watershed include calcareous fens, trout in cold-water streams, Roseau Lake, and endangered species and habitats. These features are contained within the DNR Natural Heritage Information System (NHIS) database and are identified by local sources.
	Terrestrial Habitat	Loss or degradation of perennial cover and wildlife habitat		Perennial cover refers to areas that are maintained year-round without interference, such as native prairie and forest, which can provide important pollinator and wildlife habitat, filter contaminants, slow flood waters, and provide water storage benefits.



Resource Category	Resource Concern	Issue	Planning Region Prioritization	Description
	Surface Water Quality	Untreated stormwater runoff (urban)		Stormwater runoff becomes a problem due to land use changes. As vegetation is removed and impervious surface increases, water during storm events moves more quickly across the landscape, depositing contaminants such as sediment, nutrients, chloride, and bacteria in waterways, and causing local flooding.

“As Opportunities Arise” Issues

It is not anticipated that “As Opportunities Arise” issues will be addressed within the 10-year timeframe of this plan but may be addressed through partner groups, as opportunities arise, or the issues may be moved up in priority based upon need in plan updates.

- Preservation of unique cultural resources
- Limitations of outdoor recreational opportunities



Emerging Issues

Emerging issues are concerns in the watershed that lack detailed information but may affect the resources in the Roseau River Watershed in the future. These issues are described in this section along with how the plan will address them.

Changing temperature and precipitation trends

Temperature and rainfall are increasing throughout Minnesota and long-term planning efforts are needed to address these changes. The BWSR Climate Change Trends and Action Plan outlines the most visible changes for the state.

- Warming during winter and at night. Minnesota has warmed by 2.9 °F between 1895 and 2017.
- Increased precipitation and heavier downpours. Long-term observation sites have seen increases in 1-inch rains, 3-inch rains, and the size of the heaviest rainfall of the year.



In the Roseau River Watershed storms and drought have been increasingly variable, with storms of several inch rainfalls and droughts that impact water flow in streams in the watershed. This variability can create uncertainty for water and land resources management in the future. In addition to the variability, the annual average precipitation and temperature are increasing for the Roseau River Watershed (DNR Climate Data) (Figure 2.5).

- Annual precipitation is increasing by 0.01 inches (645.2 acre feet) per decade
- Annual average temperature is increasing by 0.36 °F per decade
- Annual maximum temperature is increasing by 0.28 °F per decade
- Annual minimum temperature is increasing by 0.44 °F per decade



Average Annual Temperature

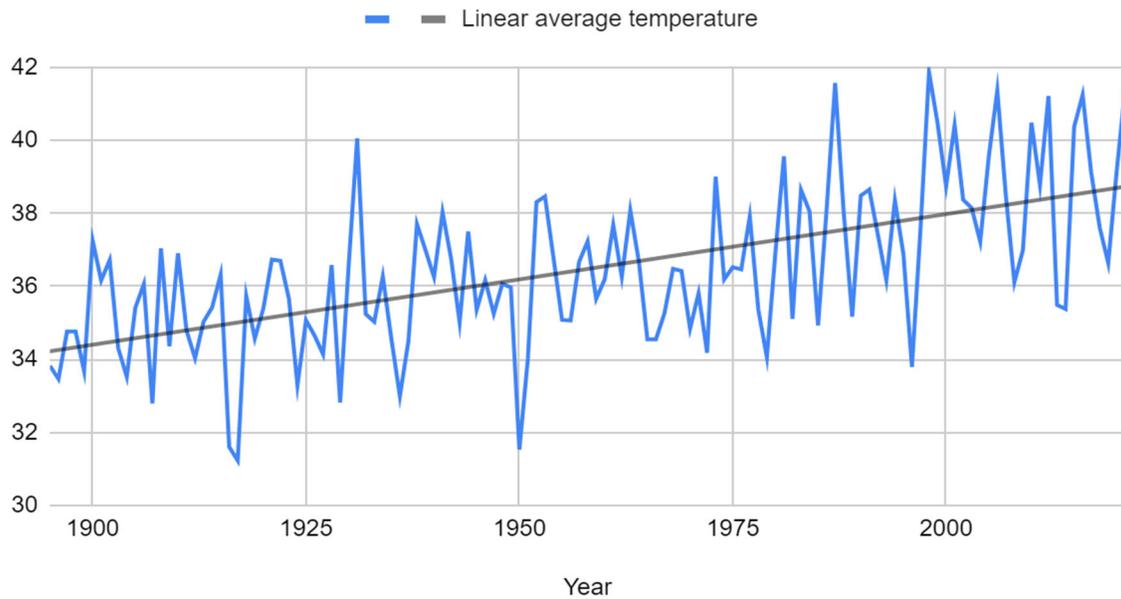


Figure 2.5 Annual average temperature in the Roseau River Watershed.

Warmer temperatures and increased precipitation have many effects on the landscape, including decreasing water quality, reducing habitat quality, and changing peak flow conditions. Increased precipitation, especially for storms with greater intensity, can erode uplands and streambanks. Precipitation and temperature changes could affect the types of vegetation and habitat, including allowing invasive species to encroach, such as Emerald ash borer and Eastern larch beetle.

Warmer temperatures lead to earlier snowmelt events, which causes peak flow conditions sooner in the year and baseflow conditions to appear earlier in the year. This affects water quality, erosion, habitat of stream animals, and other issues due to changes in stream conditions.

Changes in temperature and precipitation are considered an emerging issue, but work done through this plan will help address this concern. The Roseau River Watershed plans to address these



2002 Red River flood.

Photo Credit: Grand Forks Herald



issues through both mitigation (practices that mitigate the effects of increasing temperatures and precipitation) and adaptation (enhancing the resiliency of the watershed to future changes) (BWSR 2019). Plan goals related to flooding, soil health, and altered hydrology are described in **Section 3**.

Climate trends presented in this section are based upon information from <https://arcgis.dnr.state.mn.us/ewr/climatetrends/>.

Contaminants of Emerging Concern

Contaminants of Emerging Concern (CEC) are chemicals and compounds of interest to the public and water suppliers but aren't addressed through other programs. CECs can also include chemicals that

Examples of CECs include microplastics, estrogenic compounds, pharmaceuticals, perfluorooctanoic acid (PFOA), and others.

have an impact on fish and other wildlife. A study by the Minnesota Pollution Control Agency (MPCA) in 2017 shows that almost all lakes in Minnesota are likely to contain at least one CEC. The Roseau River Watershed may have contaminants that become a greater concern where state agencies or other organizations develop programs for specific contaminants or waterbodies. Until then, watershed partners will stay abreast of any new developments. As more state monitoring or additional information becomes available this issue or individual contaminants may be elevated in future plan updates. The Minnesota Department of Health (MDH) and MPCA have CEC programs that can be found on their websites:

<https://www.health.state.mn.us/communities/environment/risk/guidance/dwec/index.html>

pca.state.mn.us/water/contaminants-emerging-concern

Invasive Species

Invasive species include any non-native plant or animal species that have the potential to cause ecological and economic harm. There are no aquatic invasive species or infested water bodies in the watershed, but terrestrial invasive species are still a threat to upland habitat. Degrading upland habitat can affect water resources by changing perennial vegetation cover, harming the natural heritage and beauty of wetlands,



Lake infested with aquatic invasive species.



prairies, and forests, and decreasing biological diversity of beneficial native plants. Local SWCDs, townships, and cities manage terrestrial invasive species with the County Ag Inspector through the Minnesota Noxious Weed Law (MN Statutes 18.75-18.91), which defines a noxious weed as an annual, biennial, or perennial plant that the Commissioner of Agriculture designates to be injurious to public health, the environment, public roads, crops, livestock, or other property. Buckthorn, garlic mustard, spotted knapweed, and other invasive species are of the greatest concern in this watershed. See the County's website for county ag inspector information:

<https://www.roseauswcd.org/district-programs>