



## Lessard-Sams Outdoor Heritage Council

Big Swamp North - Peatland Restoration Project

ML 2025 Request for Funding

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### General Information

**Date:** 06/04/2024

**Proposal Title:** Big Swamp North - Peatland Restoration Project

**Funds Requested:** \$3,036,000

**Confirmed Leverage Funds:** -

**Is this proposal Scalable?:** Yes

### Manager Information

**Manager's Name:** Tracy Halstensgard

**Title:** Administrator

**Organization:** Roseau River Watershed District

**Address:** 714 6th St SW

**City:** Roseau, MN 56751

**Email:** tracy@roseauriverwd.com

**Office Number:** 2184630313

**Mobile Number:** 2182421737

**Fax Number:**

**Website:** roseauriverwd.com

### Location Information

**County Location(s):** Roseau.

**Eco regions in which work will take place:**

- Forest / Prairie Transition

**Activity types:**

- Restore

**Priority resources addressed by activity:**

- Wetlands
- Habitat

## Narrative

### **Abstract**

The “Big Swamp” is a wetland and peatland complex where, at the turn of the 20th century, a public drainage effort was completed by the State to encourage settlement and agricultural production. The complexes continue to be impacted due to the series of lateral ditches which directly drain surface water altering plant communities and accelerating peat degradation through groundwater drawdown. The project would restore more than 850 acres of habitat adjacent to the lateral ditches which will restore more than 2400 acres of four drained Public Waters Basins. In addition, 3 miles of Badger Creek would be restored.

### **Design and Scope of Work**

To restore the quality of wetland and peatland habitat, the project will need to start with a restoration of hydrology in the project area. The ditches installed by the State of Minnesota’s Drainage Commission in the 1910s lowered water tables in the project area and continuously drain the adjacent wetland leading to a change in plant community composition. Restoring hydrology to the wetlands would be accomplished by going through the legal process to abandon the lateral ditches and refilling those lateral ditches of State Ditch 69 to eliminate the wetland drainage. Approximately 19.4 miles of public drainage ditches would be formally abandoned by Roseau County with the goal of restoring them to natural ground level with appropriate fill material ensuring subsurface groundwater movement through the restoration. Restoration may vary depending on whether the wetland is on mineral soils or peatland soils.

Lateral ditches 1 and 3 of State Ditch 69 converted Badger Creek into a straightened ditch. The project will utilize natural channel design principles to re-meander more than 3 miles of Badger Creek. The Roseau River Watershed District will work closely with the DNR’s River Ecology Unit on the design of the restoration and Roseau County on the legal process following MN Statute 103E..

### **Explain how the proposal addresses habitat protection, restoration, and/or enhancement for fish, game & wildlife, including threatened or endangered species conservation**

Fish and wildlife habitat benefits will be achieved by restoration of hydrology to large areas of the Big Swamp by eliminating the constant drainage occurring along the lateral ditches that will be filled by the project. Benefits to aquatic invertebrates, amphibians, reptiles, and aquatic mammals will accrue whenever water is present. Fish habitat on the Roseau River will improve as a result of improved baseflow conditions due to the elimination of drainage in the Big Swamp. As wetlands adjacent to the river are drawn down naturally, water moving through the subsoil will help to deliver baseflow to the river.

The project is consistent with the watershed plan and will compliment other ongoing work in the watershed to improve fish and wildlife habitat, improve water quality, and reduce flood damage. Among the Species of Greatest Conservation Need (SGCN) within the project area that would benefit greatly from habitat quality improvement are: Nelson’s Sparrow, Yellow Rails, American Bittern, Marbled Godwit, Short-eared Owl, Northern Harrier, and Black-crowned Night Heron

### **What are the elements of this proposal that are critical from a timing perspective?**

Land acquisition has been one of the most challenging tasks in conservation projects. With appropriate funding, this project is ready for final design and implementation as it is located within the Roseau River WMA, eliminating the need for land acquisition. This project can be a showcase example of the positive impact that wetland / peatland restoration can have on building climate resiliency into habitat management. The current RRWD Board of Managers, Roseau County Commissioners, and the MN DNR WMA managers are supportive of the project and they will bring important community support required to accomplish and maintain the project goals.

## **Describe how the proposal expands habitat corridors or complexes and/or addresses habitat fragmentation:**

The MN DNR's Wildlife Action Network (WAN) is a map of quality terrestrial and aquatic habitats throughout the state. This area near the Roseau River received High and Medium High rankings in the WAN which indicates that it should be prioritized for implementing conservation actions that address habitat degradation. The WAN is comprised of several indicators of quality habitat in which the Roseau River scored High for viable population of Species of Greatest Conservation Need (SGCN), and Moderate for biodiversity significance and stream index of biological integrity.

Habitat fragmentation in the Roseau River WMA / Big Swamp habitat complex will be greatly reduced by this project. Presently the project area has an array of habitat, however due to the drainage networks constructed in the early 1910s, these communities are fragmented. In addition to the physical barriers, the effects of drainage on natural habitat have resulted in a loss in quality of habitat and increase of invasive vegetation. The proposed project will support a large mosaic of interconnected wetland, upland and stream habitat.

## **Which top 2 Conservation Plans referenced in MS97A.056, subd. 3a are most applicable to this project?**

- Minnesota Prairie Conservation Plan
- Minnesota's Wildlife Action Plan 2015-2025

## **Explain how this proposal will uniquely address habitat resilience to climate change and its anticipated effects on game, fish & wildlife species utilizing the protected or restored/enhanced habitat this proposal targets.**

Recent analysis from the MNDNR has illustrated that the Roseau River watershed is experiencing greater extremes in both high flow and low flow events compared to historical data. The project area's natural ability to store water off-channel, provides attenuation of peak flows during and post flood to diffuse the impacts of climate change both within the Big Swamp North Sub-watershed and downstream along the Roseau River. Conversely, the ability to retain water entering the restored Public Water basins, from the river can mitigate drought impacts on habitat within the watershed. Currently, during prolonged dry periods or drought, the wetlands dry down as a result of the open connection of drainage ditches to the river. Due to the existing ditch drainage, during prolonged dry periods invasive vegetation expands further into the Big Swamp resulting in reduced quality of habitat.

## **Which LSOHC section priorities are addressed in this proposal?**

### **Forest / Prairie Transition**

- Protect, enhance, and restore wild rice wetlands, shallow lakes, wetland/grassland complexes, aspen parklands, and shoreland that provide critical habitat for game and nongame wildlife

## **Describe how this project/program will produce and demonstrate a significant and permanent conservation legacy and/or outcomes for fish, game, and wildlife, and if not permanent outcomes, why it is important to undertake at this time:**

The project is another example of reversing human alterations on the natural landscape in the Roseau River Watershed. Through restoring pre-settlement hydrologic conditions within the drained Big Swamp (Roseau River WMA) and mimicking habitat composition prior to extensive drainage, the project will enhance a large complex of wetland habitat. The size of the project and the composition of habitat enhanced will provide significant benefit to wildlife within the project footprint, while also providing benefits to downstream habitat and connecting habitat

corridors upstream and downstream of the project area. This project will have a beneficial conservation outcome for generations.

The project partners have reached common ground on the desired goals of this project.

## Outcomes

### Programs in forest-prairie transition region:

- Wetland and upland complexes will consist of native prairies, restored prairies, quality grasslands, and restored shallow lakes and wetlands ~ *Miles of lateral ditches abandoned and restored will be monitored and recorded. Changes to vegetation will be measured and recorded as the groundwater drawdown is eliminated.*

### What other dedicated funds may collaborate with or contribute to this proposal?

- N/A

### Per MS 97A.056, Subd. 24, Please explain whether the request is supplanting or is a substitution for any previous funding that was not from a legacy fund and was used for the same purpose.

This request will not supplant or be substituting for other funds for the project.

### How will you sustain and/or maintain this work after the Outdoor Heritage Funds are expended?

Habitat enhancements within the rehabilitated Big Swamp portion of the Roseau River WMA will be the responsibility of the Mn DNR Section of Wildlife as part of ongoing habitat maintenance within the WMA. Roseau County will continue to manage County Recreational lands in cooperation with the MN DNR.

### Actions to Maintain Project Outcomes

Year	Source of Funds	Step 1	Step 2	Step 3
annual	MN DNR	Open landscape management (eg prescribed burns) on a rotational basis	Monitor & maintain vegetation;	Monitor & maintain vegetation;

### Provide an assessment of how your program may celebrate cultural diversity or reach diverse communities in Minnesota, including reaching low- and moderate-income households:

The Project will provide:

-improved access to low income areas by reducing southerly breakout flows to the south from the Roseau River that currently overtop County Road #7 creating impassable conditions for emergency services, mail and bus routes, as well as the community of Caribou at-large.

Project Partners will complete:

-outreach to tribal authorities on natural resource benefits  
-consultation with tribal authorities on cultural resources associated with the Big Swamp area.

Project Partners will plan additional education outreach on the cultural significance and history of the area.

## Activity Details

### Requirements

### Will restoration and enhancement work follow best management practices including MS 84.973 Pollinator Habitat Program?

Yes



**Is the restoration and enhancement activity on permanently protected land per 97A.056, Subd 13(f), tribal lands, and/or public waters per MS 103G.005, Subd. 15 or on lands to be acquired in this program?**

Yes

**Where does the activity take place?**

- WMA

## Land Use

**Will there be planting of any crop on OHF land purchased or restored in this program, either by the proposer or the end owner of the property, outside of the initial restoration of the land?**

No

**Will insecticides or fungicides (including neonicotinoid and fungicide treated seed) be used within any activities of this proposal either in the process of restoration or use as food plots?**

No

## Other OHF Appropriation Awards

**Have you received OHF dollars through LSOHC in the past?**

Yes

**Are any of these past appropriations still OPEN?**

Yes

Approp Year	Funding Amount Received	Amount Spent to Date	Funding Remaining	% Spent to Date
2024	\$3,056,000	-	-	-
2020	\$3,036,000	\$583,300	\$2,452,700	19.21%
Totals	\$6,092,000	\$583,300	\$5,508,700	9.57%

## Timeline

Activity Name	Estimated Completion Date
Planning and design	12-01-2026
construction	June 30, 2030

Budget**Totals**

Item	Funding Request	Total Leverage	Leverage Source	Total
Personnel	-	-	-	-
Contracts	\$2,485,000	-	-	\$2,485,000
Fee Acquisition w/ PILT	-	-	-	-
Fee Acquisition w/o PILT	-	-	-	-
Easement Acquisition	-	-	-	-
Easement Stewardship	-	-	-	-
Travel	-	-	-	-
Professional Services	\$550,000	-	-	\$550,000
Direct Support Services	-	-	-	-
DNR Land Acquisition Costs	-	-	-	-
Capital Equipment	-	-	-	-
Other Equipment/Tools	-	-	-	-
Supplies/Materials	\$1,000	-	-	\$1,000
DNR IDP	-	-	-	-
<b>Grand Total</b>	<b>\$3,036,000</b>	<b>-</b>	<b>-</b>	<b>\$3,036,000</b>

**Amount of Request:** \$3,036,000

**Amount of Leverage:** -

**Leverage as a percent of the Request:** 0.0%

**DSS + Personnel:** -

**As a % of the total request:** 0.0%

**Easement Stewardship:** -

**As a % of the Easement Acquisition:** -

**Does this proposal have the ability to be scalable?**

Yes

### **If the project received 50% of the requested funding**

**Describe how the scaling would affect acres/activities and if not proportionately reduced, why?**

Professional services would need to be completed to approximately 75%. The project construction would be phased to complete portions as funding allows.

**Describe how personnel and DSS expenses would be adjusted and if not proportionately reduced, why?**

Not applicable.

### **If the project received 30% of the requested funding**

**Describe how the scaling would affect acres/activities and if not proportionately reduced, why?**

Professional services would need to be completed to approximately 75%. The project construction would be phased to complete portions as funding allows.

**Describe how personnel and DSS expenses would be adjusted and if not proportionately reduced, why?**

Not applicable.

## **Contracts**

**What is included in the contracts line?**

Construction contracts

## **Professional Services**

**What is included in the Professional Services line?**

- Design/Engineering
- Other : Cultural Resources; DNR Lands & Minerals - school trust lands
- Surveys

## **Federal Funds**

**Do you anticipate federal funds as a match for this program?**

No

Output Tables**Acres by Resource Type (Table 1)**

Type	Wetland	Prairie	Forest	Habitat	Total Acres
Restore	3,259	0	0	66	3,325
Protect in Fee with State PILT Liability	0	0	0	0	0
Protect in Fee w/o State PILT Liability	0	0	0	0	0
Protect in Easement	0	0	0	0	0
Enhance	0	0	0	0	0
<b>Total</b>	<b>3,259</b>	<b>0</b>	<b>0</b>	<b>66</b>	<b>3,325</b>

**Total Requested Funding by Resource Type (Table 2)**

Type	Wetland	Prairie	Forest	Habitat	Total Funding
Restore	\$1,050,000	-	-	\$1,986,000	\$3,036,000
Protect in Fee with State PILT Liability	-	-	-	-	-
Protect in Fee w/o State PILT Liability	-	-	-	-	-
Protect in Easement	-	-	-	-	-
Enhance	-	-	-	-	-
<b>Total</b>	<b>\$1,050,000</b>	<b>-</b>	<b>-</b>	<b>\$1,986,000</b>	<b>\$3,036,000</b>

**Acres within each Ecological Section (Table 3)**

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	N. Forest	Total Acres
Restore	0	3,325	0	0	0	3,325
Protect in Fee with State PILT Liability	0	0	0	0	0	0
Protect in Fee w/o State PILT Liability	0	0	0	0	0	0
Protect in Easement	0	0	0	0	0	0
Enhance	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>3,325</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3,325</b>

**Total Requested Funding within each Ecological Section (Table 4)**

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	N. Forest	Total Funding
Restore	-	\$3,036,000	-	-	-	\$3,036,000
Protect in Fee with State PILT Liability	-	-	-	-	-	-
Protect in Fee w/o State PILT Liability	-	-	-	-	-	-
Protect in Easement	-	-	-	-	-	-
Enhance	-	-	-	-	-	-
<b>Total</b>	<b>-</b>	<b>\$3,036,000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>\$3,036,000</b>

**Average Cost per Acre by Resource Type (Table 5)**

Type	Wetland	Prairie	Forest	Habitat
Restore	\$322	-	-	\$30,090
Protect in Fee with State PILT Liability	-	-	-	-
Protect in Fee w/o State PILT Liability	-	-	-	-
Protect in Easement	-	-	-	-
Enhance	-	-	-	-

**Average Cost per Acre by Ecological Section (Table 6)**

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	N. Forest
Restore	-	\$913	-	-	-
Protect in Fee with State PILT Liability	-	-	-	-	-
Protect in Fee w/o State PILT Liability	-	-	-	-	-
Protect in Easement	-	-	-	-	-
Enhance	-	-	-	-	-

**Target Lake/Stream/River Feet or Miles**

3 miles

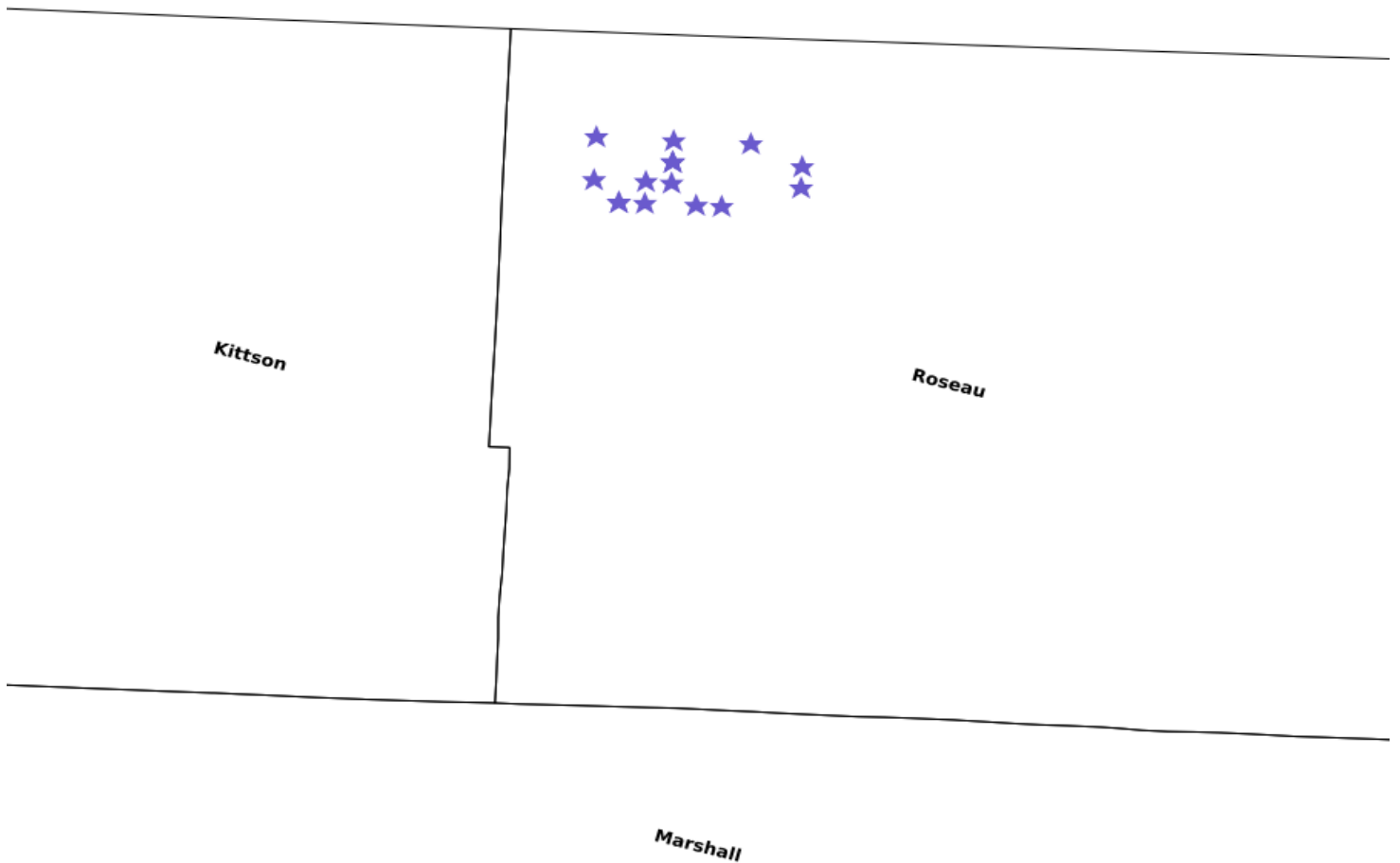
Parcels**Sign-up Criteria?**

No

**Explain the process used to identify, prioritize, and select the parcels on your list:****Restore / Enhance Parcels**

Name	County	TRDS	Acres	Est Cost	Existing Protection	Description
463006200	Roseau	16344234	411	\$132,418	Yes	Parcel Includes Sections: 34,35
463006000	Roseau	16344236	58	\$18,687	Yes	-
463005200	Roseau	16344222	1,214	\$391,132	Yes	Parcel Includes Sections: 22, 23, 24, 25, 26, 27
453001300	Roseau	16343225	18	\$538,659	Yes	-
453001000	Roseau	16343236	28	\$833,615	Yes	-
453000702	Roseau	16343222	3	\$967	Yes	-
453000701	Roseau	16343219	1,146	\$976,504	Yes	Parcel Includes Sections: 19, 20, 21, 22, 23, 26, 27, 28, 29, 30, 31, 32, 33
453000401	Roseau	16343231	9	\$2,900	Yes	-
450000300	Roseau	16343230	3	\$967	Yes	-
450000200	Roseau	16343230	10	\$3,222	Yes	-
450000100	Roseau	16343230	10	\$3,222	Yes	-
413003101	Roseau	16244202	189	\$60,893	Yes	-
413003100	Roseau	16244202	10	\$3,222	Yes	-
413000100	Roseau	16244201	55	\$17,720	Yes	-
303003100	Roseau	16243204	90	\$28,997	Yes	Parcel Includes Sections: 5, 6
303000400	Roseau	16243205	71	\$22,875	Yes	-

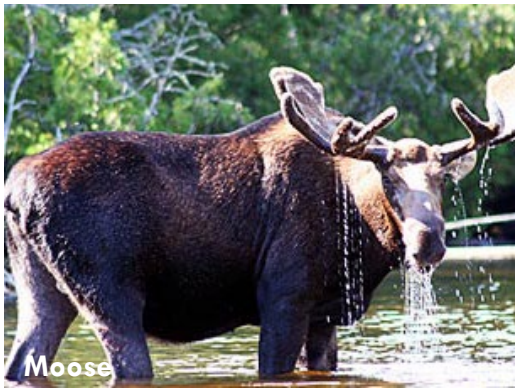
Parcel Map



0 2 4 6 mi

- Protect in Easement
- ▲ Protect in Fee with PILT
- Protect in Fee W/O PILT
- ★ Restore
- ✕ Enhance
- ✚ Other





Moose



Yellow Rail



Northern Harrier

# Big Swamp North Peatland Restoration



## Project Background & Scope

The “Big Swamp” is a wetland and peatland complex where, at the turn of the 20th century, a public drainage effort was completed by the State to encourage settlement and agricultural production. The complexes continue to be impacted due to the series of lateral ditches which directly drain surface water altering plant communities and accelerating peat degradation through groundwater drawdown. The project will start with restoring hydrology in the project area.

To restore hydrology to the wetlands, we would go through the legal process to abandon the lateral ditches and refill those lateral ditches of State Ditch 69 to eliminate the wetland drainage. Roseau County would officially abandon about 19.4 miles of public drainage ditches, aiming to restore them to their natural ground level with suitable fill material that allows groundwater to flow through the restoration. Restoration will vary depending on whether the wetland is on mineral soils or peatland soils.

The project will restore more than 850 acres of habitat adjacent to the laterals and will help to restore more than 2,400 acres of four drained public waters. In addition, 3 miles of Badger Creek would be restored.

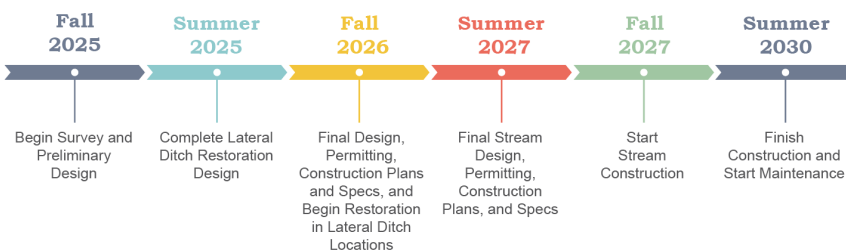
Lateral Ditches 1 and 3 of State Ditch 69 converted Badger Creek into a straightened ditch. The project will utilize natural channel design principles to meander more than 3 miles of what was once Badger Creek. The Roseau River Watershed District will work closely with the DNR’s River Ecology Unit on the restoration design and Roseau County on the legal process following MN Statute 103E Drainage Law.

The restoration is located within the DNR’s Aspen Parklands Conservation Focus Area (CFA) identified in the Minnesota Wildlife Action Network (WAN), as well as the Kittson-Roseau Aspen Parkland Prairie Core Area identified in the Minnesota Prairie Conservation Plan. The project area near the Roseau River received High and Medium High rankings in the WAN which indicates that it should be prioritized for implementing

conservation actions that address habitat degradation. The project area near the Roseau River is considered a key habitat for species of great conservation need and received a high score (high priority for restoration) in the WAN.

With appropriate funding, this project is ready for implementation as it is located on protected land within the Roseau River WMA. Eliminating the need for major land acquisition bypasses one of most difficult steps in conservation projects. This project will provide a unique opportunity to observe the enhancement of adjacent wetland and upland habitats responding to restored natural hydrology.

## Timeline

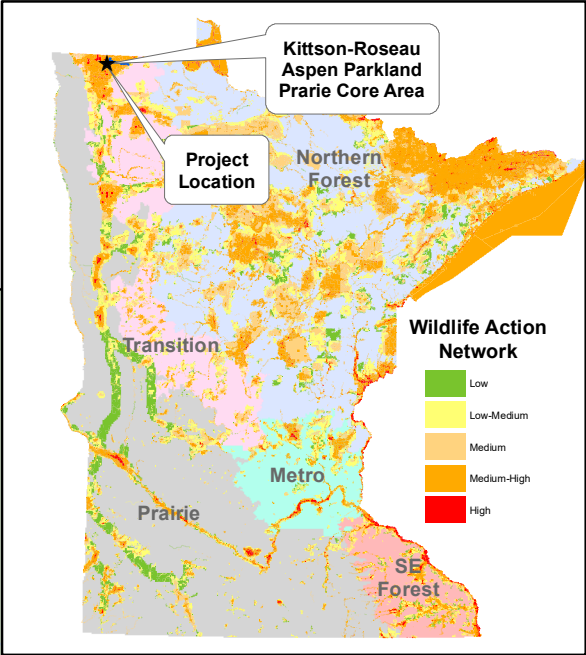


## Outcomes/Benefits

- Restore hydrology to four DNR public water wetland basins
- Eliminate 19.4 miles of ditch laterals
- Restore hydrology for more than 3,300 acres of wetlands
- Increased ecosystem resilience to climate change and invasive species
- Improved biodiversity



Short-eared owl



Canada

Roseau River  
WMA

Roseau River

Public Water Basins  
Planned for Restoration

Lateral Ditches to  
be Restored

State Ditch 69

Remeandering of  
Badger Creek



Marbled Godwit

