Protecting forests and water quality in the Upper Mississippi River Watershed

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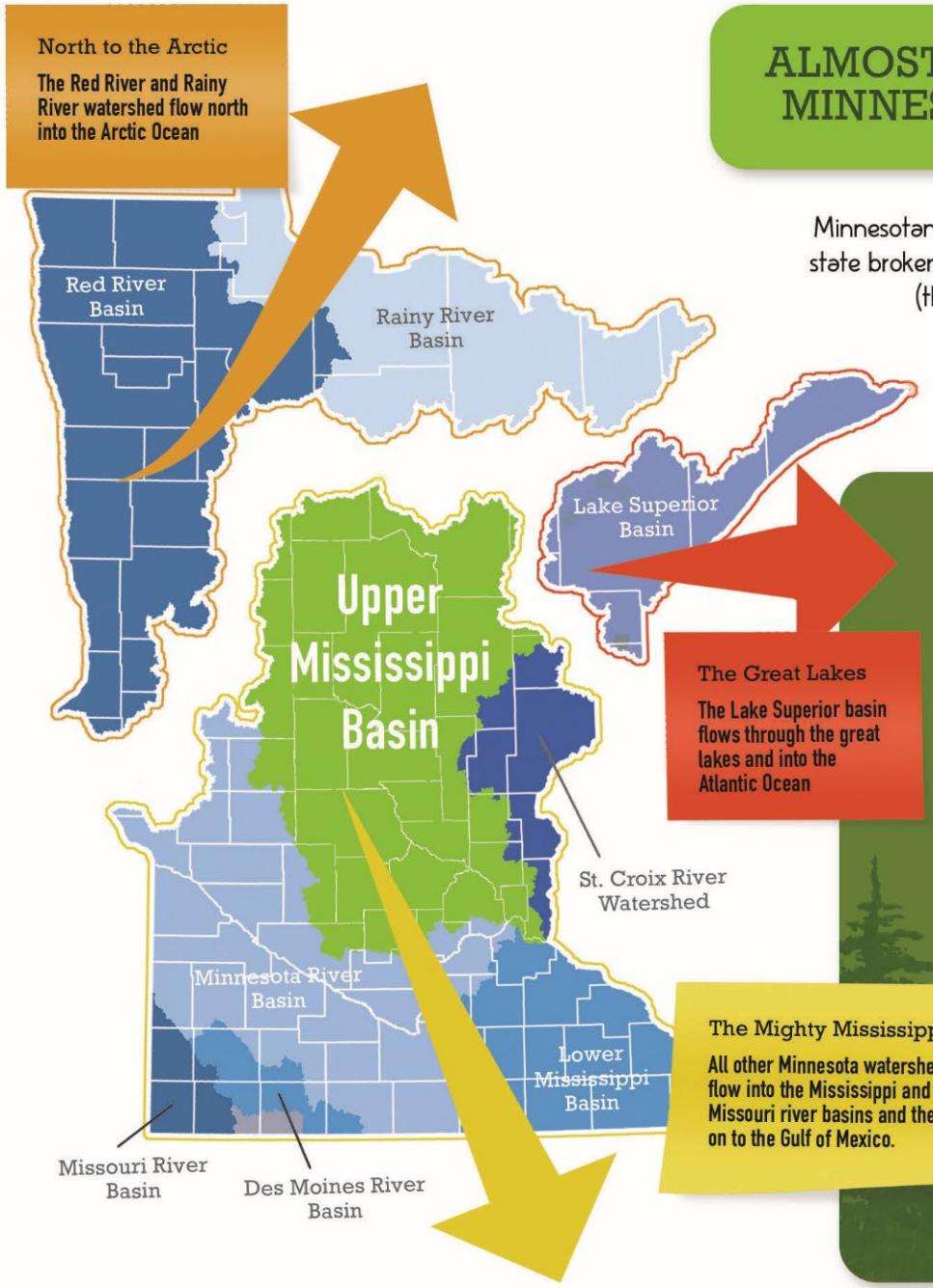
Board of Water and Soil Resources (retired)

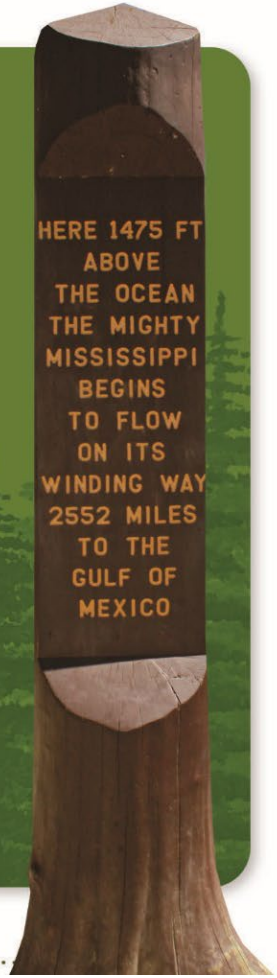
LCC Subcommittee on Minnesota Water Policy June 10, 2024

ALMOST NO WATER FLOWS IN TO MINNESOTA, IT ALL FLOWS OUT

Minnesotans are stewards of many waters. The map shows our state broken into counties, (the white lines) by major watershed, (the various blue sections) The upper Mississippi basin, (Highlighted in green) and by water flow (the orange, red,and yellow groups).



The Mississippi River begins its winding journey to the Gulf of Mexico as a mere 18-foot wide knee-deep river in Itasca State Park. From here the river flows north to Bemidji, where it turns east, and then south near Grand Rapids. It will flow a total of 694 miles before working its way out of Minnesota.



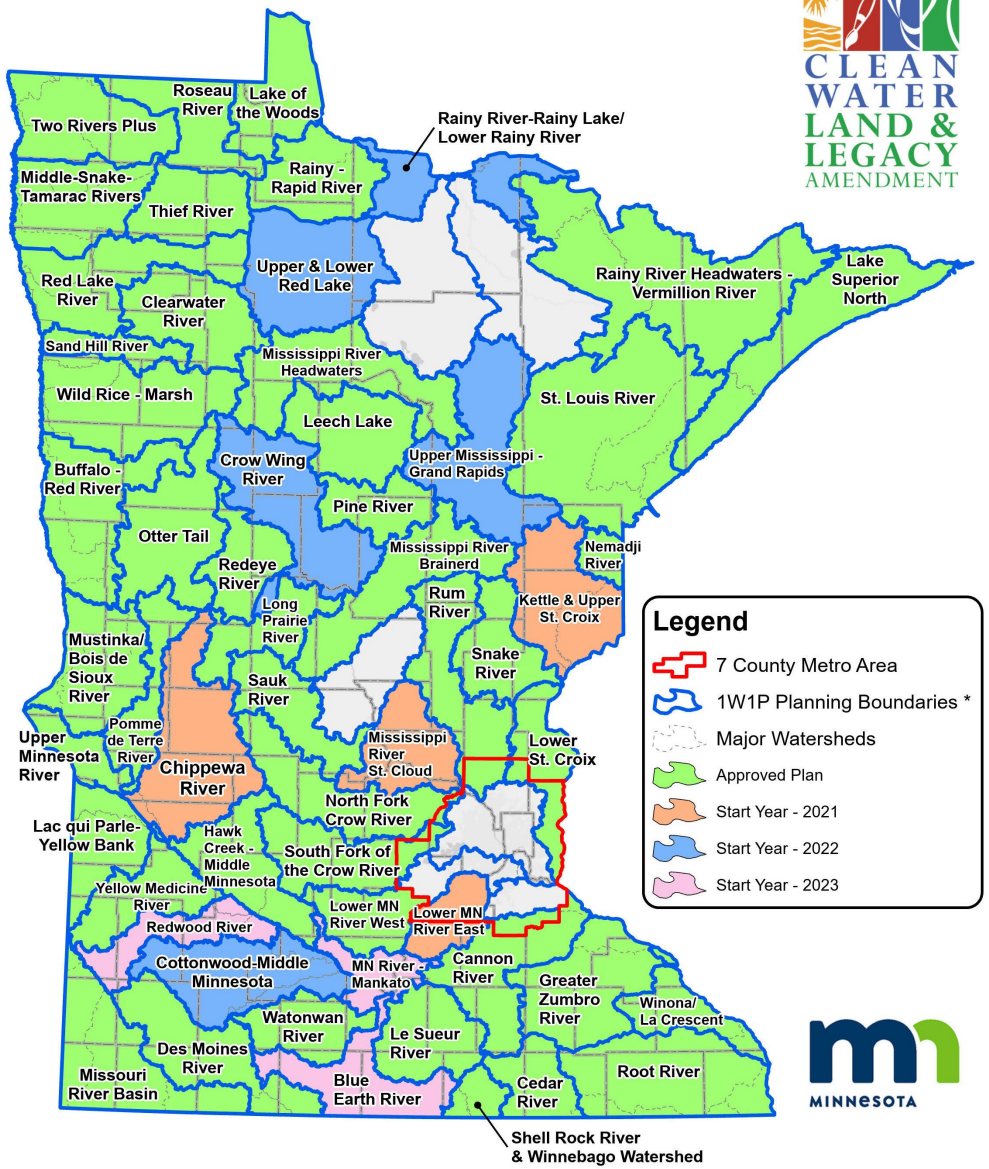
Mississippi River Headwaters Watershed Comprehensive Plan

HEADWATERSHED.org

CLEAN WATER LAND & LEGACY AMENDMENT

One Watershed One Plan

One Watershed, One Plan
Participating Watersheds

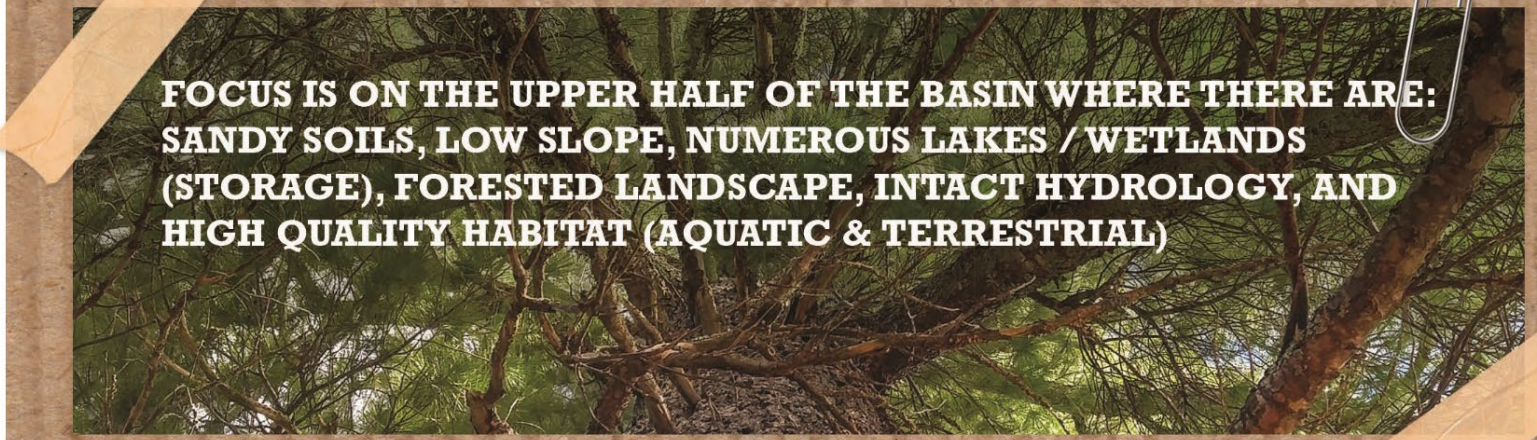


*Not legal boundaries; intended for planning purposes through One Watershed, One Plan only.

April 2024

MINNESOTA

Designed for Protection



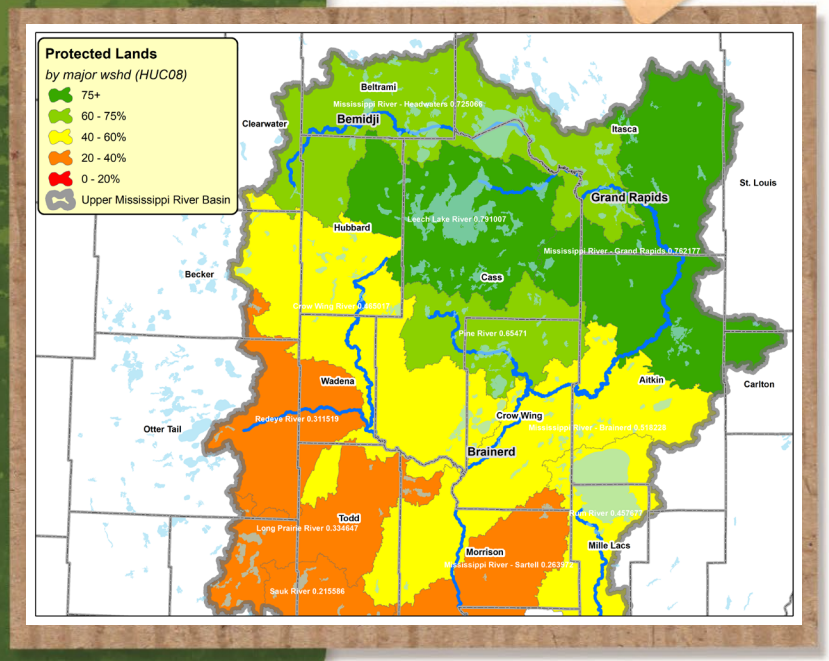
FOCUS IS ON THE UPPER HALF OF THE BASIN WHERE THERE ARE: SANDY SOILS, LOW SLOPE, NUMEROUS LAKES / WETLANDS (STORAGE), FORESTED LANDSCAPE, INTACT HYDROLOGY, AND HIGH QUALITY HABITAT (AQUATIC & TERRESTRIAL)

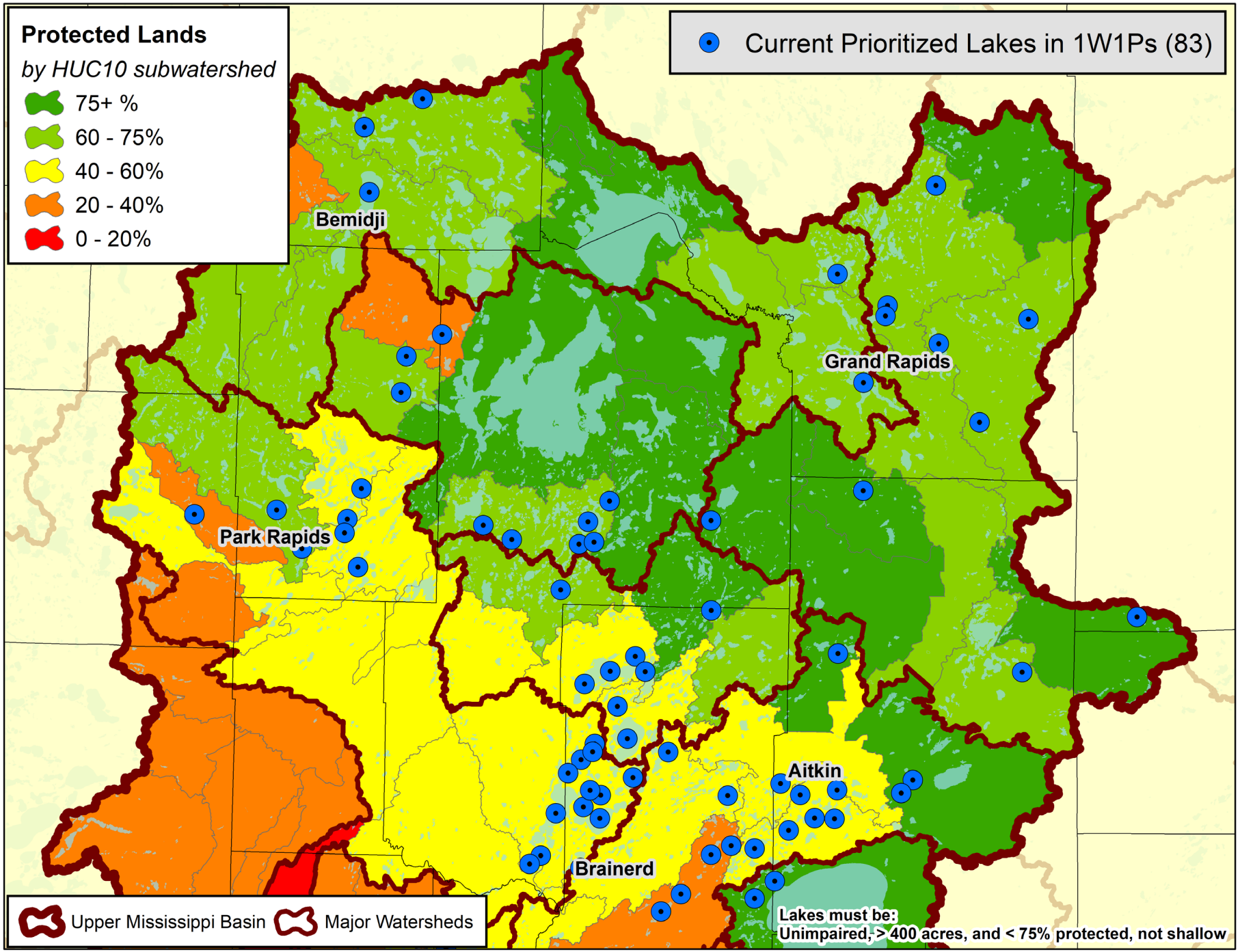
CHALLENGES:

- Oof the most complicated ownership patterns of private, county, state, and federal, & tribal land in the US.
- 4000+ lakes (how to prioritize)

WHERE TO START:

The light green portions shown on the map & in the chart are the "sweet spot" where we maximize ***return on investment.*** The most acres of the highest quality fish & wildlife habitat for the fewest dollars.




Protected Lands
by HUC10 subwatershed
75+ %
60 - 75%
40 - 60%
20 - 40%
0 - 20%
Current Prioritized Lakes in 1W1Ps (83)
Bemidji
Grand Rapids
Park Rapids
Aitkin
Brainerd
Upper Mississippi Basin
Major Watersheds
Lakes must be:
Unimpaired, > 400 acres, and < 75% protected, not shallow

STEAMBOAT RIVER WATERSHED IMPROVMENT OVERVIEW

FOREST

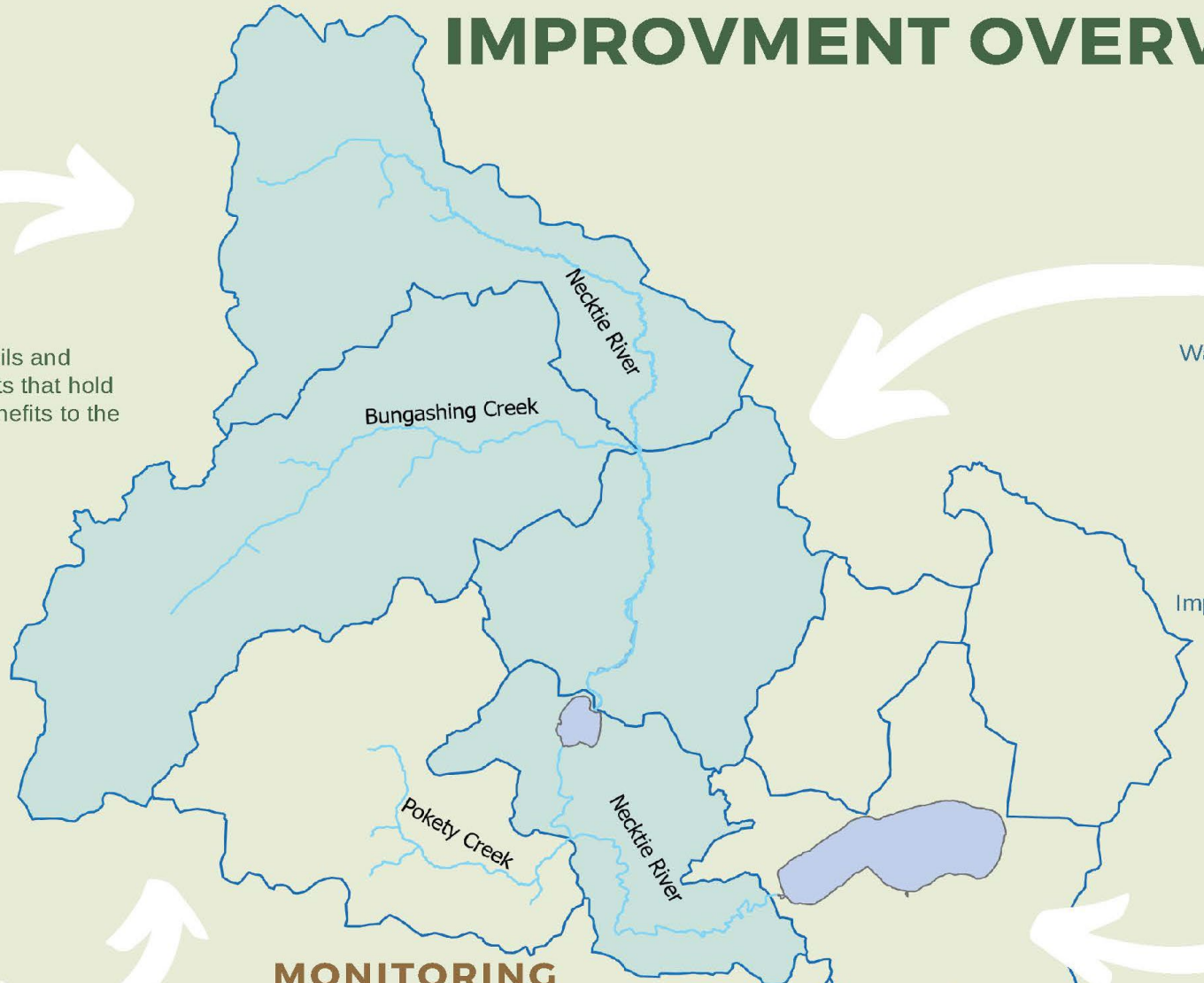
Forests are a key ingredient to keeping soils and waters naturally healthy. It is private forests that hold the most potential for providing holistic benefits to the ecosystem of this watershed.

Protective Actions:
Private Forest Management (PFM)
Carbon Sequestration
Reforestation
Conservation easements
Prescribed burning

SOIL

Managing soil health and erosion impacts water quality. Keeping nutrients on the land protects both surface and ground water resources.

Protective Actions:
Reduce Agricultural Runoff
Community Gardens
Soil Erosion
Wetland Protection
Stream Bank Stabilization



MONITORING

Various monitoring efforts have been done or are underway from MPCA, MN DNR, and Local Government. This has helped identify locations of impairment and projects for restoration.

Current Monitoring Actions:
Invert and Fish Health
Bank Erosion Estimates

WATER

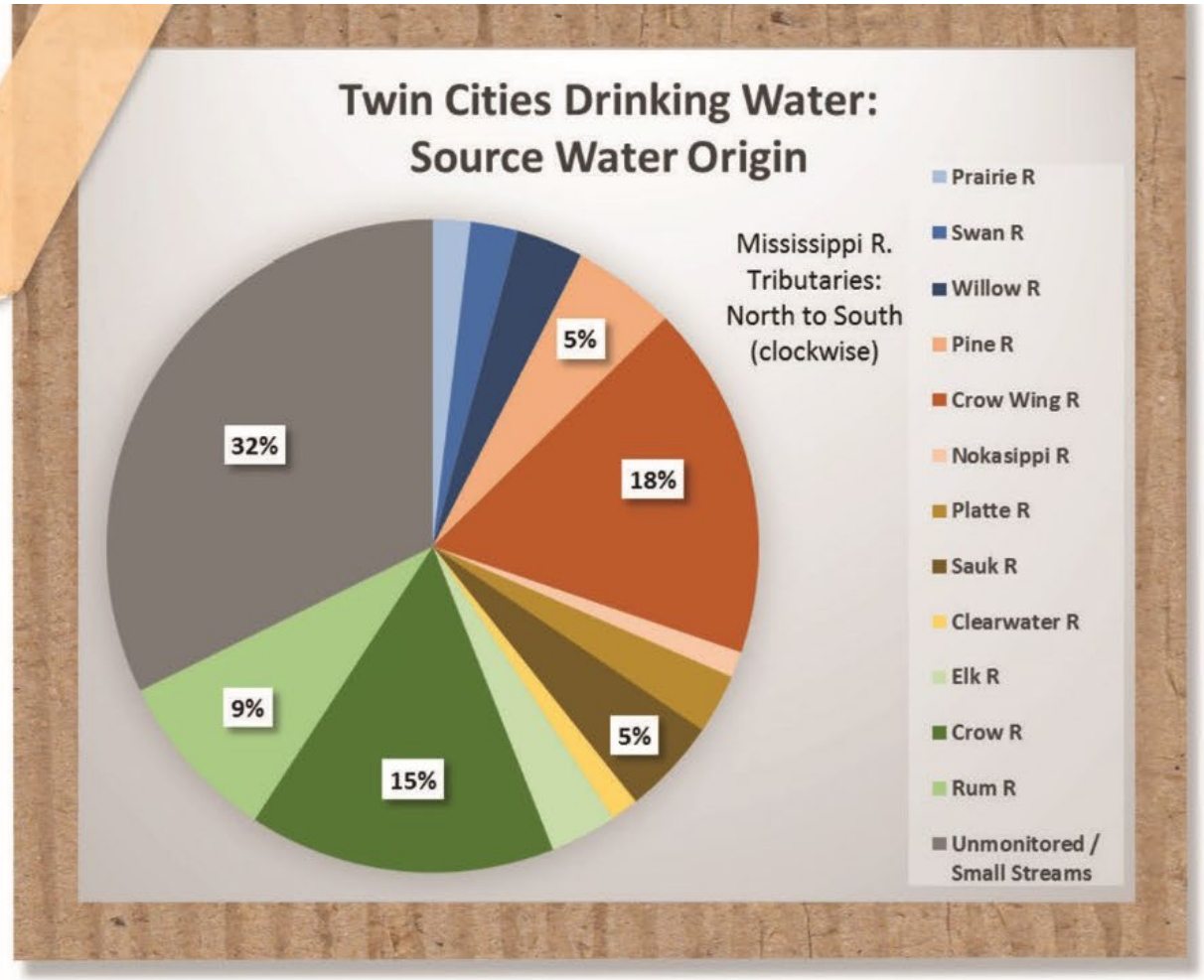
Water quality in this area is needed support habitat for native species like trout and to protect recreation including wild rive harvesting.

Protective Actions:
Storm-water Mitigation
Water Quality Monitoring
Re-meandering of Necktie River
Reduce Ground Water Pollution
Improve Shore-Land Resilience Along Steamboat Lake
Reduce Sedimentation in Hart Lake
Reduce Streambank Erosion in Necktie
Improve Connectivity To Tributary Headwaters

Human

Community involvement and enjoyment is an important step in realizing conservation goals. Outreach and education on managing both their public and private resources is key.

Protective Actions:
Lawn Runoff and Phosphorus
Interactive Trail Maps
Informational Visitor Sites
Public Fishing Access
Roadway Salting Practices



"Drink up!"
YOUR CLEAN WATER HAS BEEN PROVIDED BY THE UPPER MISSISSIPPI BASIN!

SOURCE-WATER

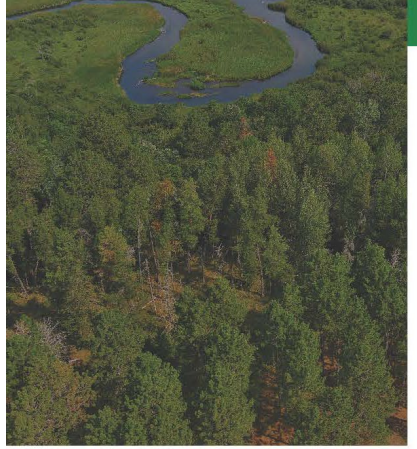
The upper Mississippi basin serves as Minnesota's largest source-water. It is the primary water source for the cities of St. Cloud, Minneapolis, and St. Paul.

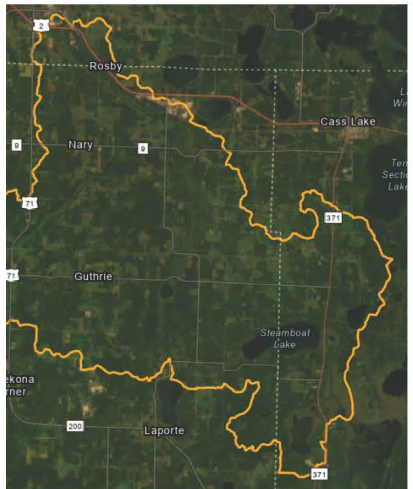
Protecting Lakes, Streams, & Forests in the Upper Mississippi River Basin

Protected Status of Major Watersheds in Mississippi Basin

Major Watershed	Watershed Acres	Forest Lands (ac)	% Forested*	% Protected	Strategy
Leech Lake River	857,971	560,736	65.4%	79.1%	Vigilance
Mississippi River - Grand Rapids	1,332,798	979,498	73.5%	76.2%	Vigilance
Mississippi River - Headwaters	1,228,889	799,294	65.0%	72.5%	Sweet Spot!
Pine River	500,887	338,948	67.7%	65.6%	Sweet Spot!
Mississippi River - Brainerd	1,076,300	539,590	50.1%	52.1%	Further to go
Crow Wing River	1,268,959	667,797	52.6%	46.3%	Further to go
Rum River	1,013,794	322,607	31.8%	45.8%	Further to go
Long Prairie River	565,078	135,945	24.1%	33.5%	Limited
Redeye River	572,069	143,895	25.2%	31.2%	Limited
Mississippi River - Sartell	656,115	138,344	21.1%	26.4%	Limited
Mississippi River - St. Cloud	717,376	128,179	17.9%	25.6%	Limited
Sauk River	666,750	68,068	10.2%	21.6%	Limited
North Fork Crow River	644,320	87,281	13.5%	<20%	Limited
South Fork Crow River	944,854	33,848	3.6%	<20%	Limited
Mississippi River - Twin Cities	818,100	68,776	8.4%	<20%	Limited

* Includes woody wetlands





WATER QUALITY MANAGEMENT

LEECH LAKE 1W1P

About the LLRW 1W1P

The Leech Lake River 1W1P was developed by the Minnesota Board of Soil and Water Resources with help from Cass, and Hubbard SWCDs, along with other partner organizations.
The goal is to improve water resources at a watershed scale by working with the community to implement ecological and engineered practices, conservation, and education.
The Leech Lake River Watershed is in the heart of Minnesota's premier lake country and contains many pristine natural resources. some highlights of this watershed:
- 1,335 square miles in the northern part of the Upper Mississippi River Basin
- 277 river miles and over 750 lakes
- The forests, lakes, streams, and wetlands support an abundant amount of fish and wildlife habitat
- It provides a substantial amount of clean drinking water for communities downstream along Mississippi River including St. Cloud, Minneapolis, and St. Paul.

The vision statement of the LLR1W1P is: "Woods, water, wildlife, and people; a healthy watershed that supports a vibrant economy."

Priority areas for water quality

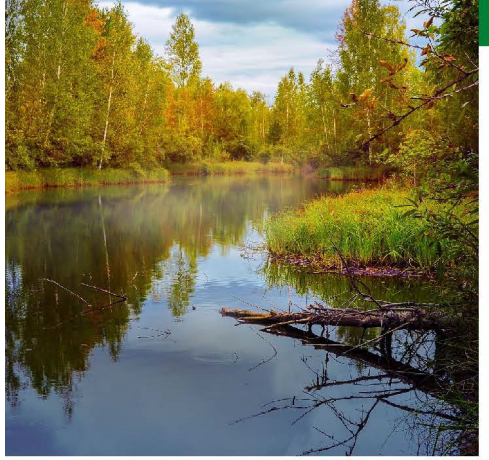
- Lakes
- Streams
- Wetlands
- Drinking water
- Ground water
- Forests
- Cities & Townships
- Cropland & working lands

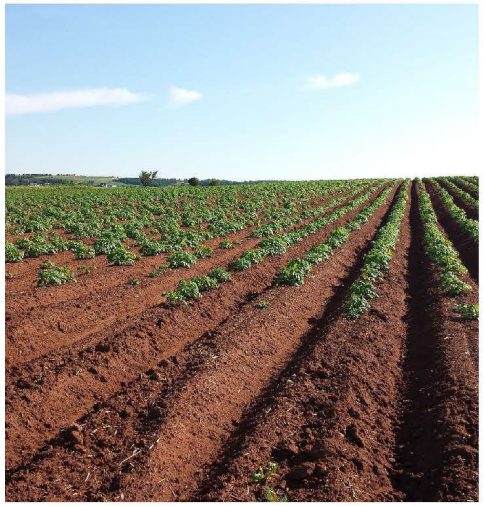
Four Values were identified in this watershed, based on local input from the communities, lake associations, and other agencies These Values are: **Natural Work Climate and Risk, Quality of Lif and Leadership**

EPA Nine Key Element 319 Pla

In July 2022, we were awarded the EPA NKE 319 grant which incorporates all 85,825 acres of the Steamboat River watershed (See map to the left). This project aims a a holistic approach to land conservation, preservation, and protection in the Steamboat River watershed. We are in the process c finishing the plan and will work on outreaching to the community for projects and plans.

To get more information about Conservation Easements or Forest Stewardship Plans, please reach out to Brandon at brandon.hcswcd@gmail.com or call 218-252-6963
Scan the QR code for more info too!





(218) 732-0121 | hubbardswcd.org |
603 North Central Ave, Suite 100. Park Rapids, MN 56470

WATER QUALITY MANAGEMENT

CROW WING RIVER 1W1P

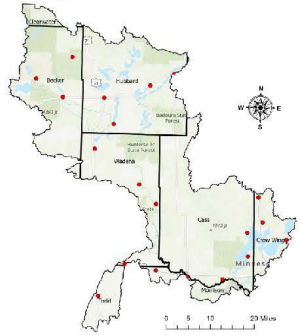
What Is A 1w1p

1w1p stands for One Watershed One plan which is a relatively new framework for addressing water quality concerns holistically. Historically water quality protection has been implemented on jurisdictional boundaries which allowed local governments to focus on their local priorities. This system worked well to address issues that started and ended in the same jurisdiction. However this did not always work well on water quality issues that were a result of issues that crossed borders. This had made it difficult for some areas which receive water to address water quality concerns that did not originate in their area.

The 1w1p or One Watershed One Plan framework creates a partnership of local governments that work to address water quality concerns holistically. This involves local government partners working with landowners across the watershed to protect priority resources through a variety of BMPs. This makes it easier to address water quality concerns across jurisdictional boundaries.

Crow Wing Watershed

The Crow Wing River Watershed covers a large diverse swath landscapes across north central Minnesota. The watershed stretches from southern Clearwater county down to Northern Morrison. The Crow Wing Watershed covers most of he southern half of Hubbard County including the cities of Park Rapids, Nevis, and most of Akeley.



How To Get Involved

The Crow Wing Watershed partnership will be providing a variety of options to submit feedback and priorities to be taken into consideration when building the plan. This will include a variety of citizen stakeholder meetings across the watershed. There will also be a digital survey sent out to local papers and to groups who have expressed interest. Keep an eye out in local outlets for meeting dates and instructions to access the surveys.

NEVIS SCHOOL FOREST POLLINATOR GARDEN

HUBBARD COUNTY Soil & Water Conservation District

NEVIS PUBLIC SCHOOL

Fifth-grade students from Nevis Public School built birdhouses in the classroom and then placed them in the forest, a connection that will last a lifetime!

HOW IT STARTED

This 80-acre site has been enrolled in the school forest program since 1953. It has experienced ups and downs of use over the years, and, after 15 years of non-use and suffering a windstorm in recent years, it needed work. Kevin Longtin and Jodi Sandmeyer, educators and outdoor enthusiasts, have taken the lead in rejuvenating the Nevis School Forest through funding received by local school forest funds and HCSWCD from the Conservation Partners Legacy with MNDNR.

Pollinator Garden: 2,500 pollinator plants planted.

Trails: Cleared and widened 2.5 miles of existing trails and cut more trails. Trails were mapped.

Additional: Birdhouses and trail cameras were installed for habitat and student observation.

Kabekona River E. coli

HUBBARD COUNTY Soil & Water Conservation District

HOW IT STARTED

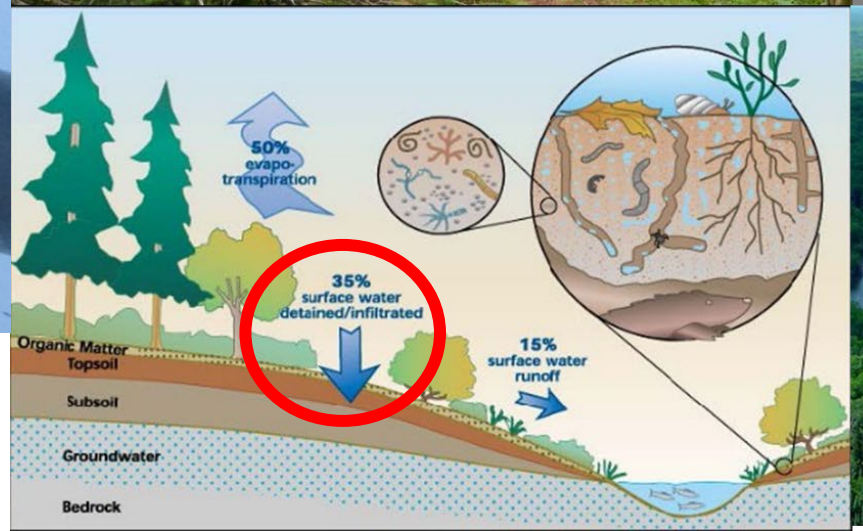
The Upper Reaches of the Kabekona River were designated as impaired for Aquatic Recreation due to highly elevated E. coli levels. In the early 2010's, the average was upwards of 360 cfu. This was well above the current standard for human aquatic use. Small scale projects to dissuade cattle from spending large amount of time near or in the river failed to have the desired impact, and E. coli levels remained quite high. In 2022 Full Exclusion of cattle from the river was implemented. Accomplished by fencing, revegetation of a 100-foot buffer, and providing a remote watering station, the cattle now have little impact on the river. Today the E. coli levels average 103, cfu below the impairment level of 123 cfu and a third of the highest levels.

FUTURE MINDED

Today the Kabekona River impairment is trending downward with E. coli levels in theacceptable range. Further work is needed to address E. coli Human source component. We will focus on this in the next phase of E. coli mitigation.

Protect the Sponge!

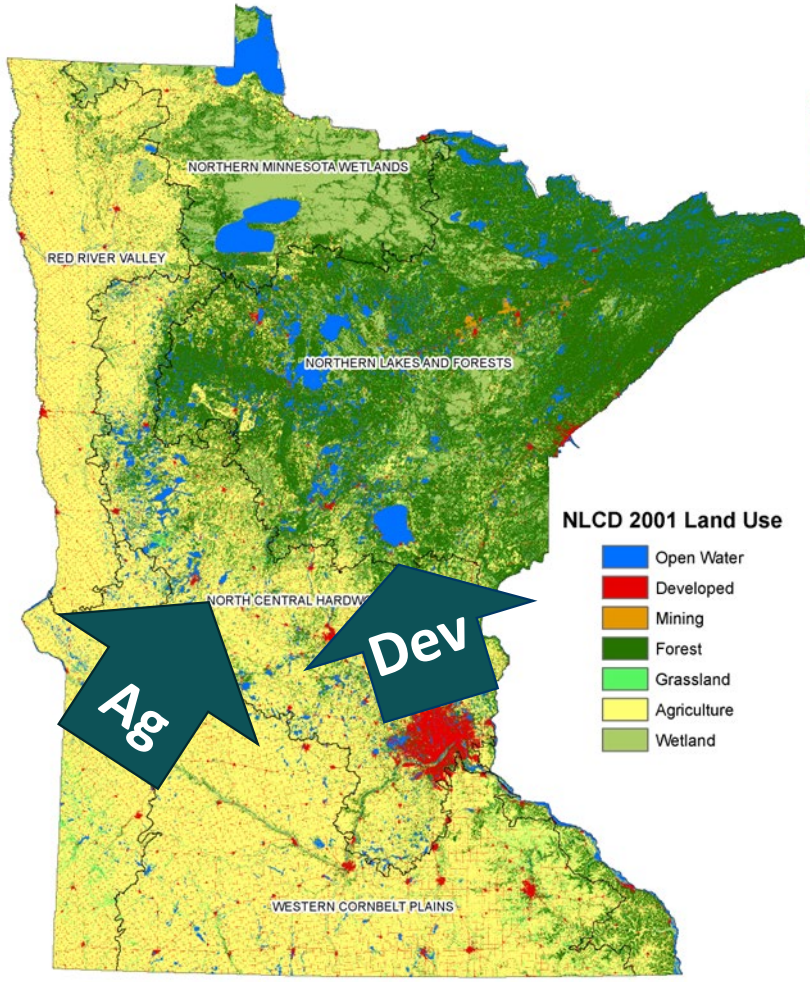
Forests Infiltrate Water!



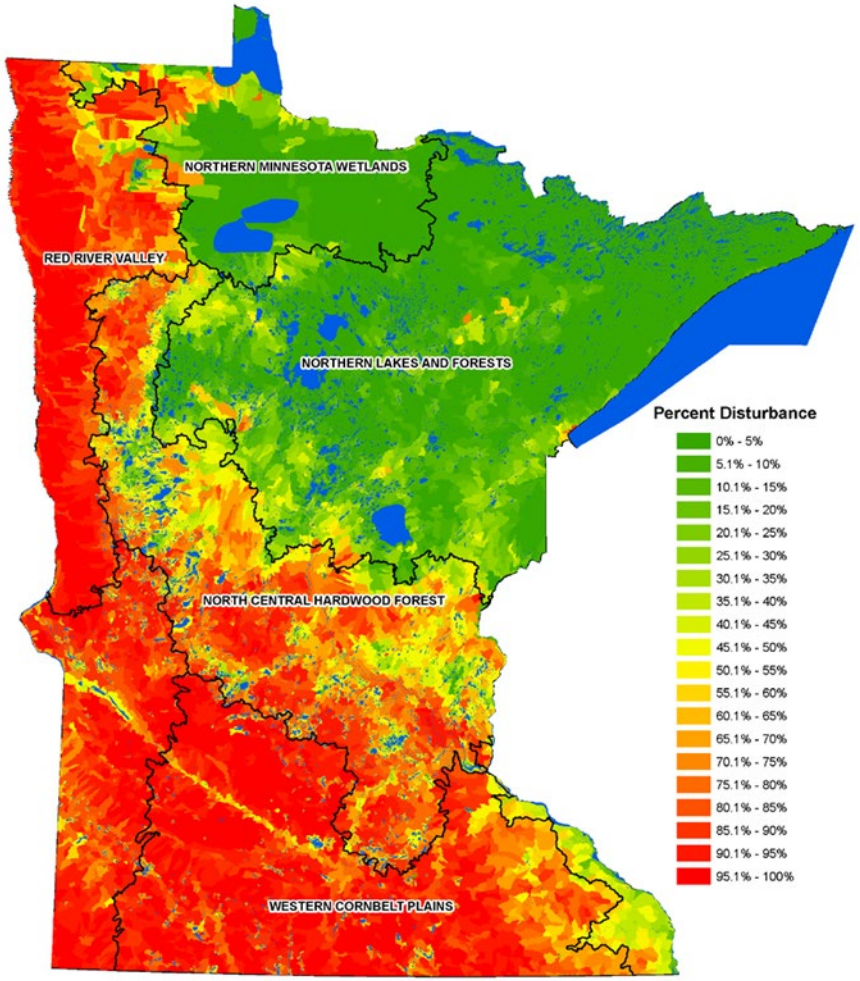
Porous forest soils absorb precipitation and deliver clean water through groundwater connections to lakes

Minnesota: Diverse & Competing Land Uses

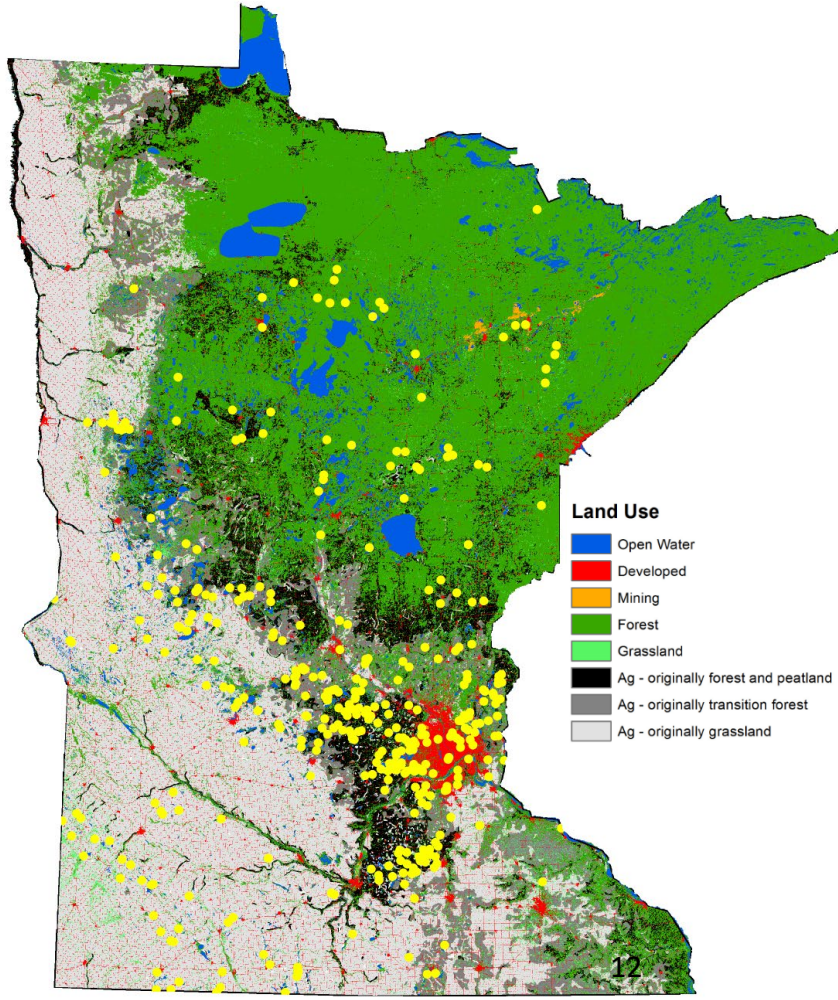
Minnesota Land Use



Land Use Disturbance within Local Watershed Catchments



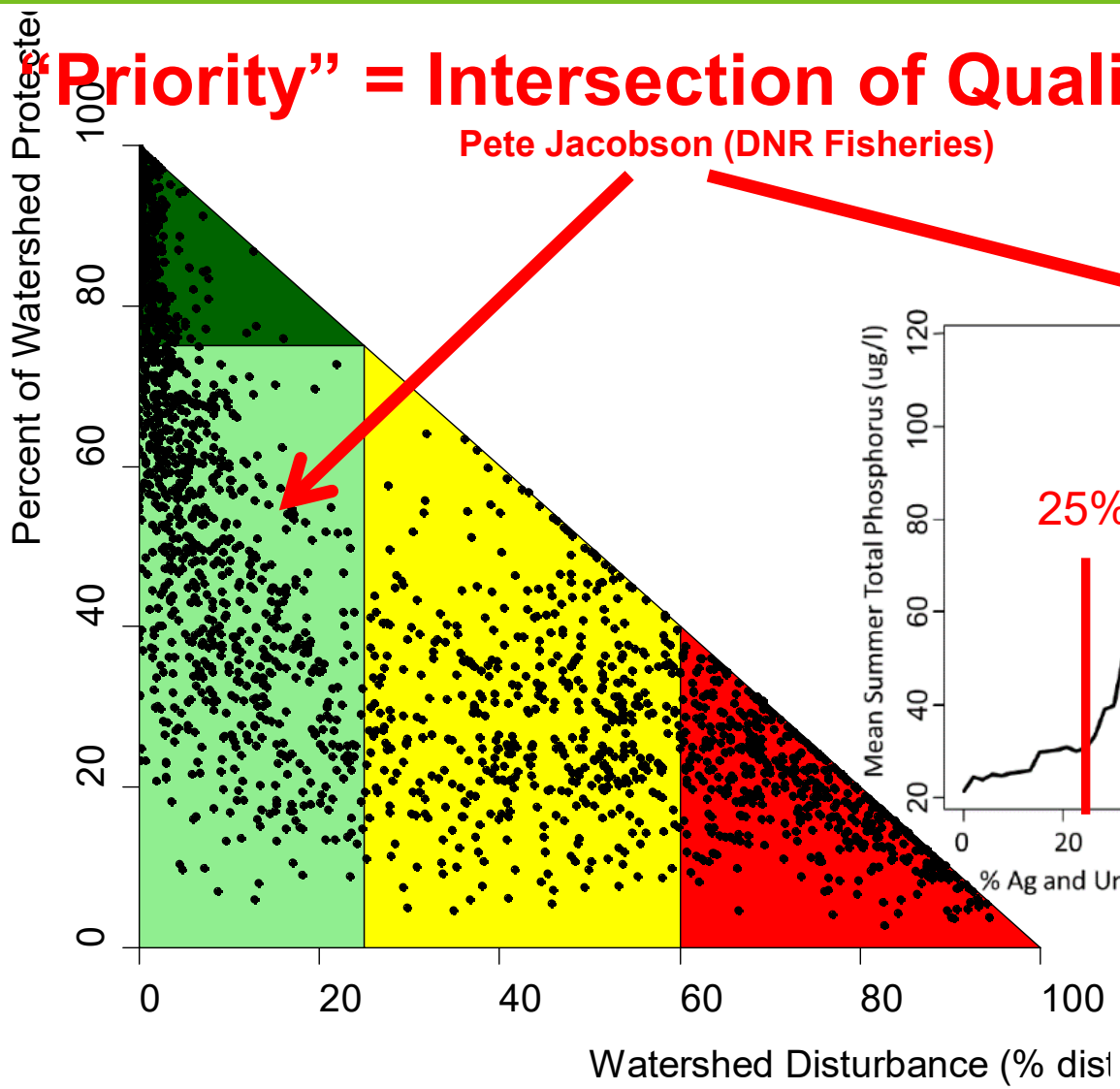
Converted Lands & Impaired Waters

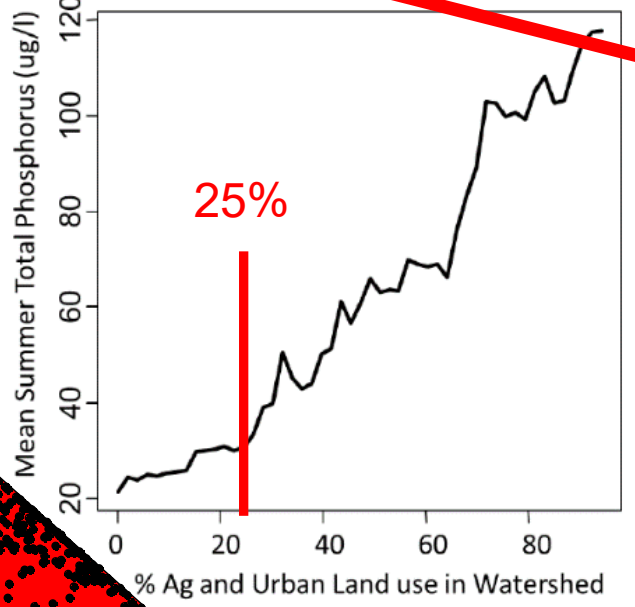


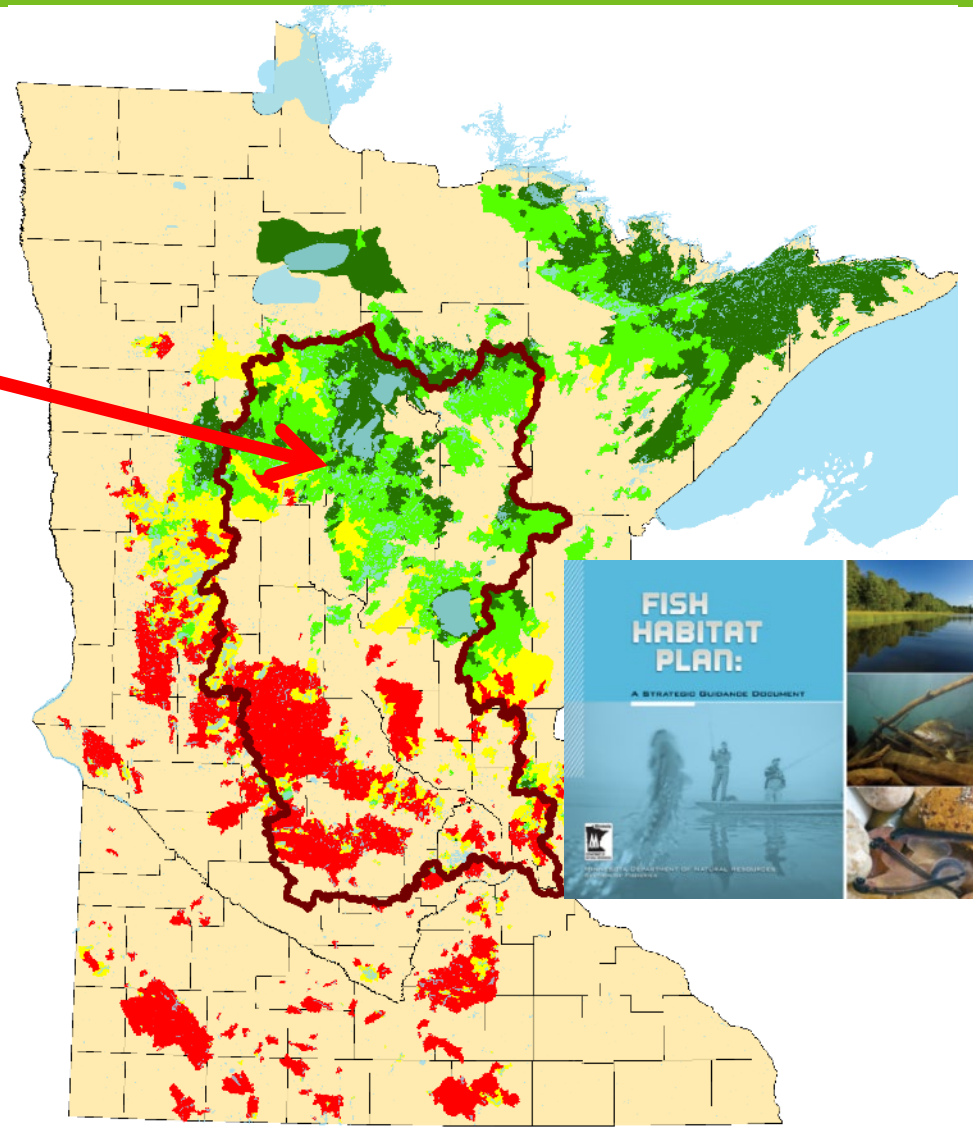
Is there a tipping point for watershed disturbance?

"Priority" = Intersection of Quality & Risk

Pete Jacobson (DNR Fisheries)







Tullibees = Canary in the Coal Mine!

MINNESOTA CONSERVATION VOLUNTEER

Minnesota Department of Natural Resources

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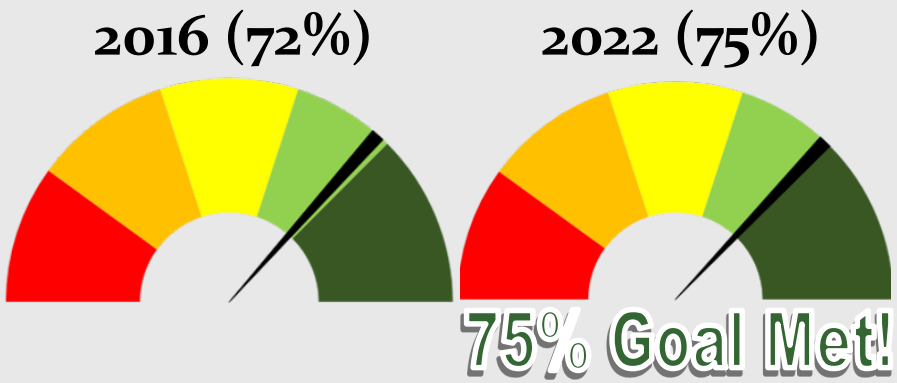
May–June 2016

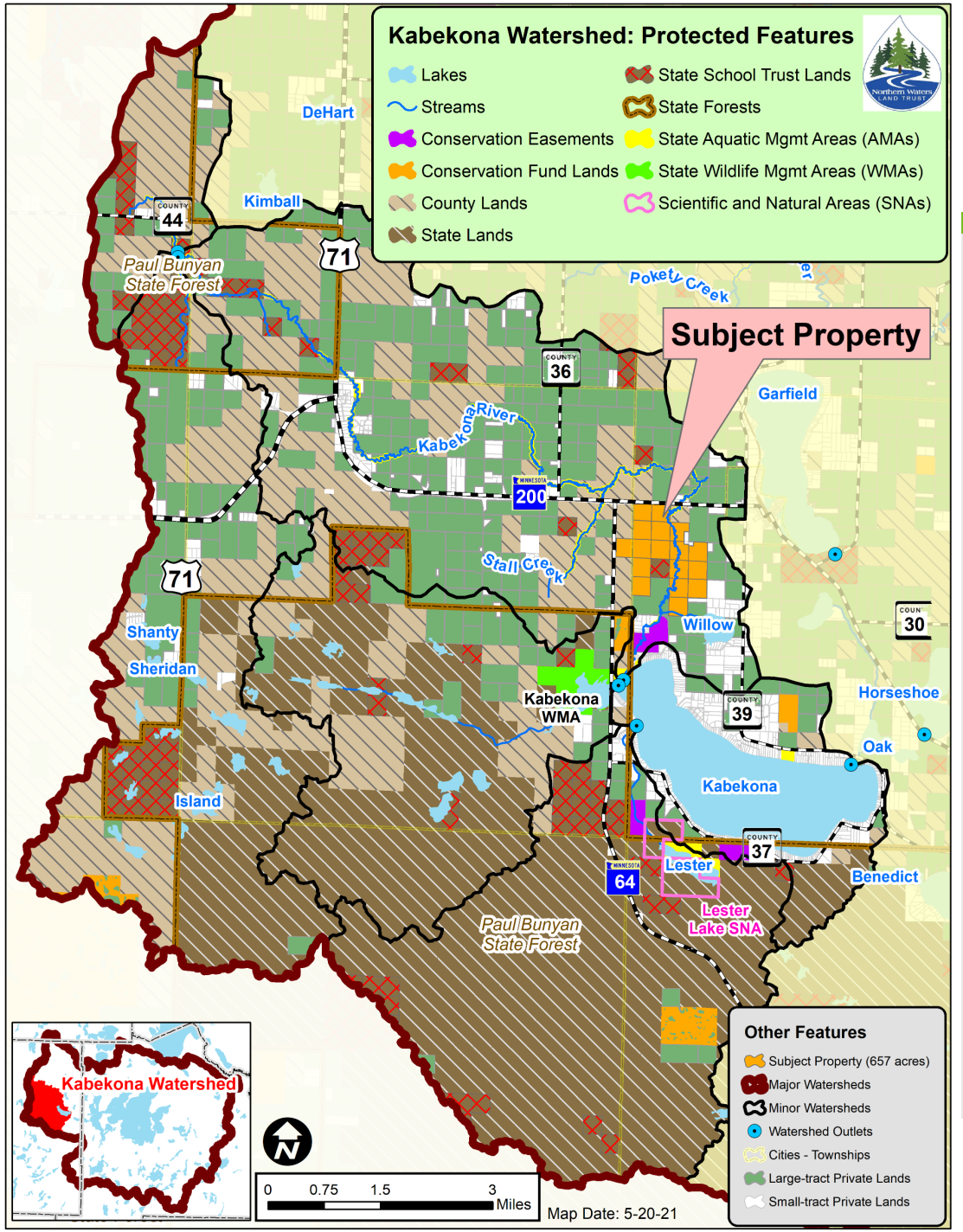
Refuge for Tullibees

Protecting private forests could help save Minnesota's tullibees, important forage fish for many game fish species.

Kabekona Lake/River Watershed

- 2252 Acre Lake in Hubbard County
- 10 Miles of Shoreline
- Deep-water fishery: 133 feet deep
- Cisco Refuge Lake
- Large Watershed (100+/- sq. miles)
- Headwaters to Leech Lake

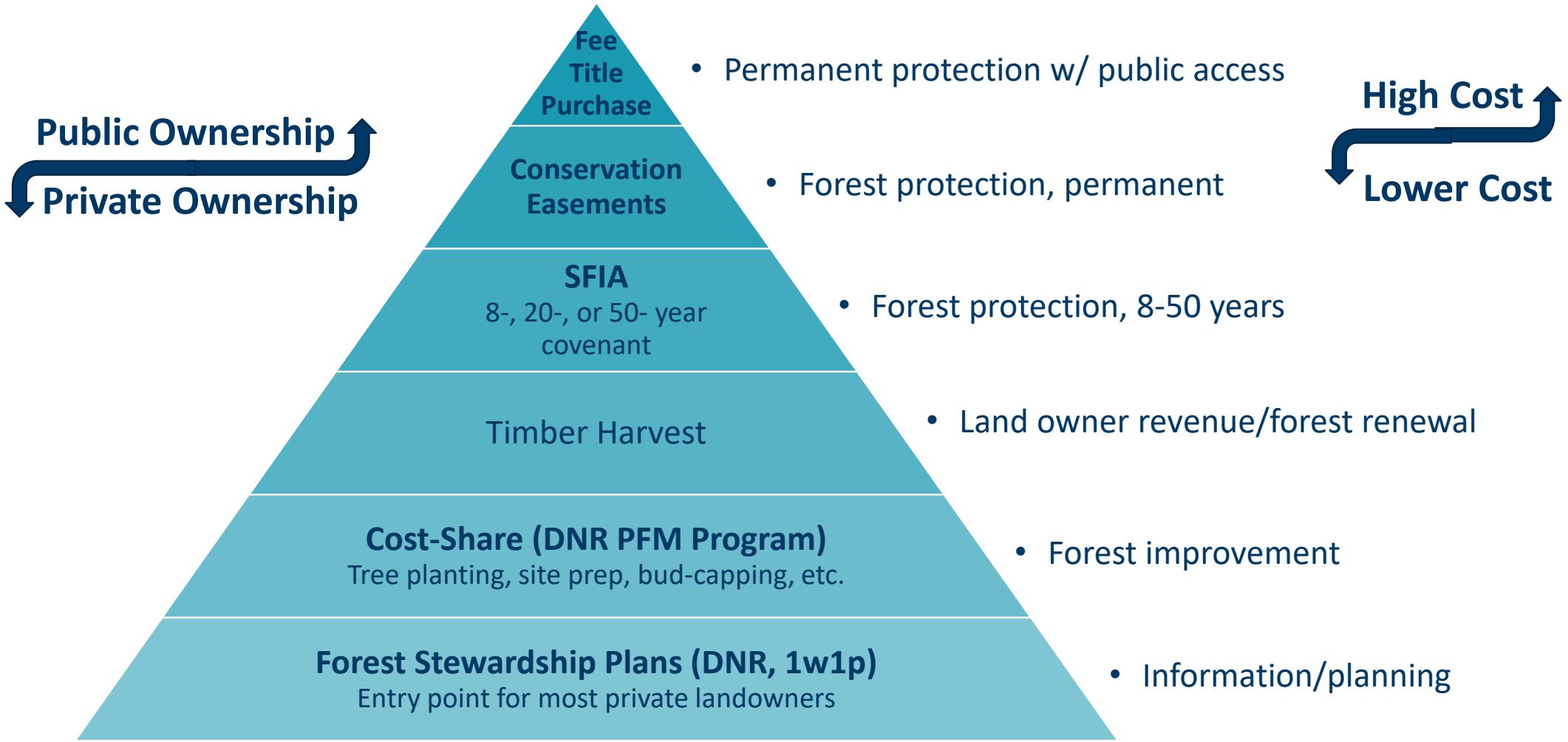




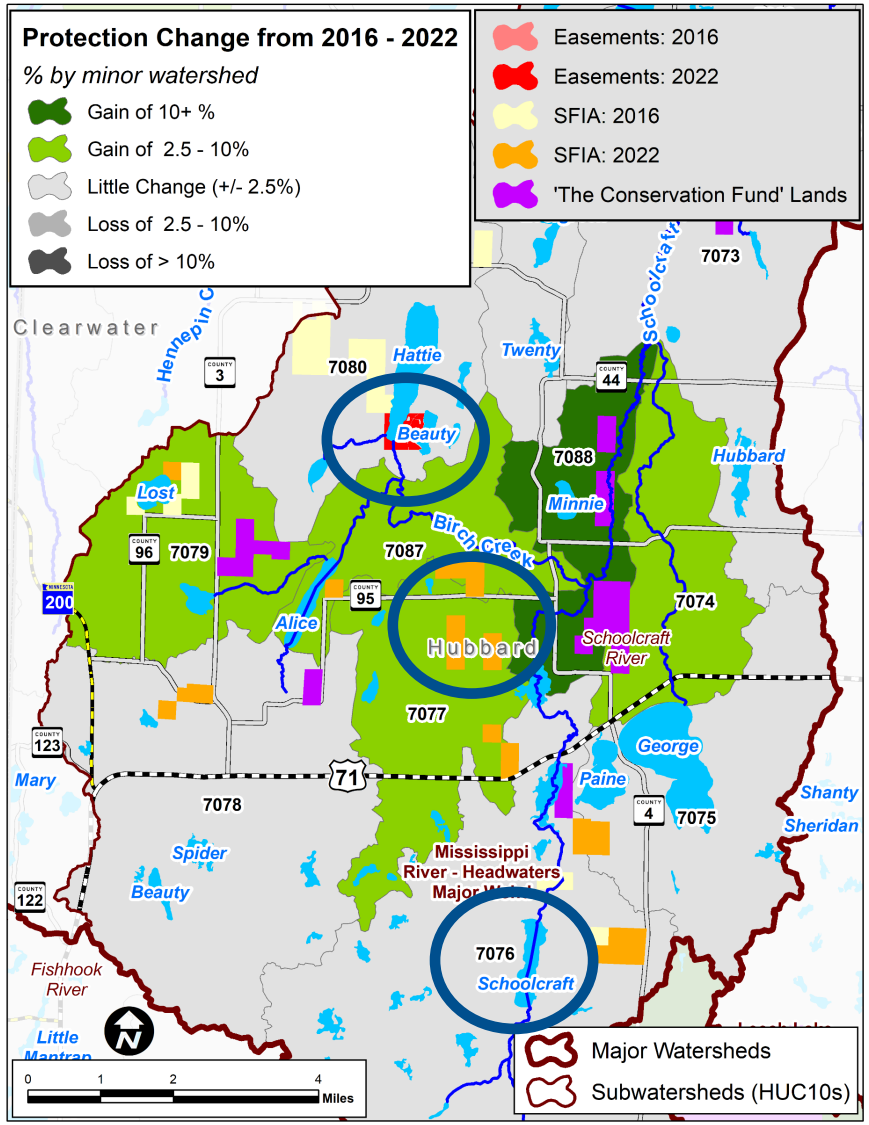
Kabekona Lake/River Watershed

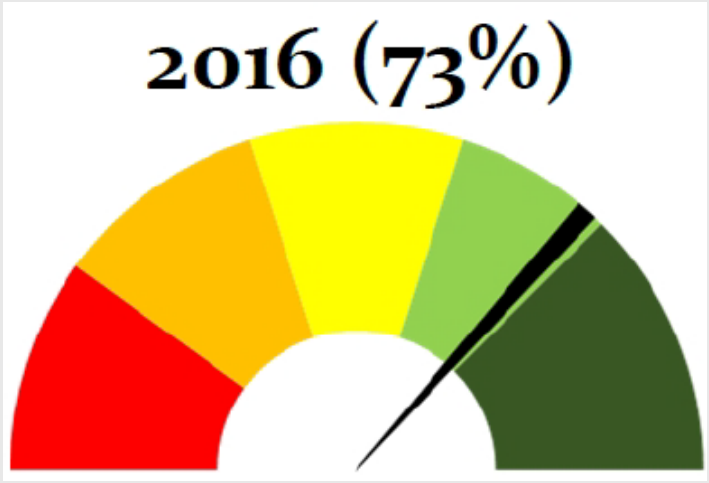
- **2 acres** sold in 1995 to DNR for the Kabekona Lake AMA by the Kabekona Lake Foundation
- **27 acres** on Kabekona Lake and 1,500 feet of the Kabekona River purchased in 2006 for the DNR AMA by NWLT using public funds and private funds raised by the Kabekona Lake Foundation
- **320 acres** purchased in 2010 for the DNR Lester Lake Scientific Natural Area by the Trust for Public Land using Outdoor Heritage Funds and private funds raised by the Kabekona Lake Foundation
- **120 acres** purchased in 2010 for the DNR Lester Lake Aquatic Management Area by the Trust for Public Land using Outdoor Heritage Funds and private funds raised by the Kabekona Lake Foundation
- **13 acres** purchased in 2019 for the DNR Kabekona Lake AMA by the Northern Waters Land Trust using Outdoor Heritage Funds and private funds raised by the Kabekona Lake Foundation
- **72 acres** purchased in 2022 for Hubbard County Forests by Crow Wing Soil and Water Conservation District (Northern Waters Land Trust) using Outdoor Heritage Funds with a significant contribution from the landowner. The Conservation Fund sold the property for well below market value.
- **2,529 acres** purchased in 2023 for DNR State Forests by Trust for Public Land using Outdoor Heritage Funds with a significant contribution from the landowner. The Conservation Fund sold the property for well below market value. Approximately 136 acres of the “Sheep Ranch” property in Clay Township is in the Kabekona Lake Watershed.
- **657 acres** most recently purchased in 2023 for DNR State Forests by the Northern Waters Land Trust using Outdoor Heritage Funds with a significant contribution from the landowner (see map). The Conservation Fund sold the property for well below market value. An extensive portion of the Kabekona River, approximately 1.6 miles, runs through this property.

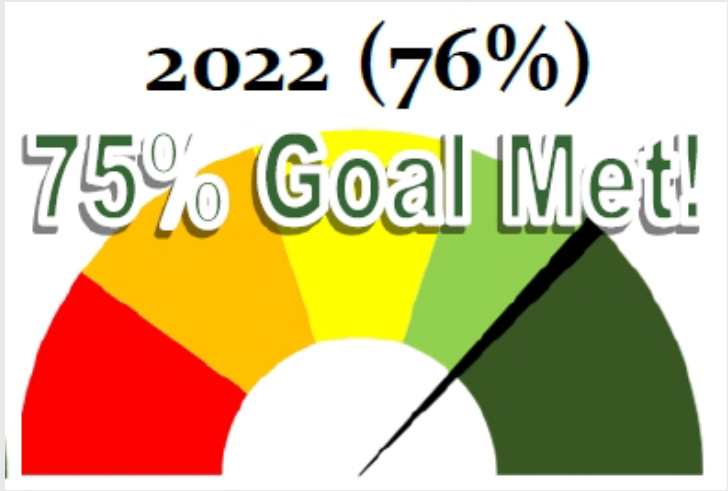
Legislative Tools for Moving the Needle to 75%



Schoolcraft River Complex

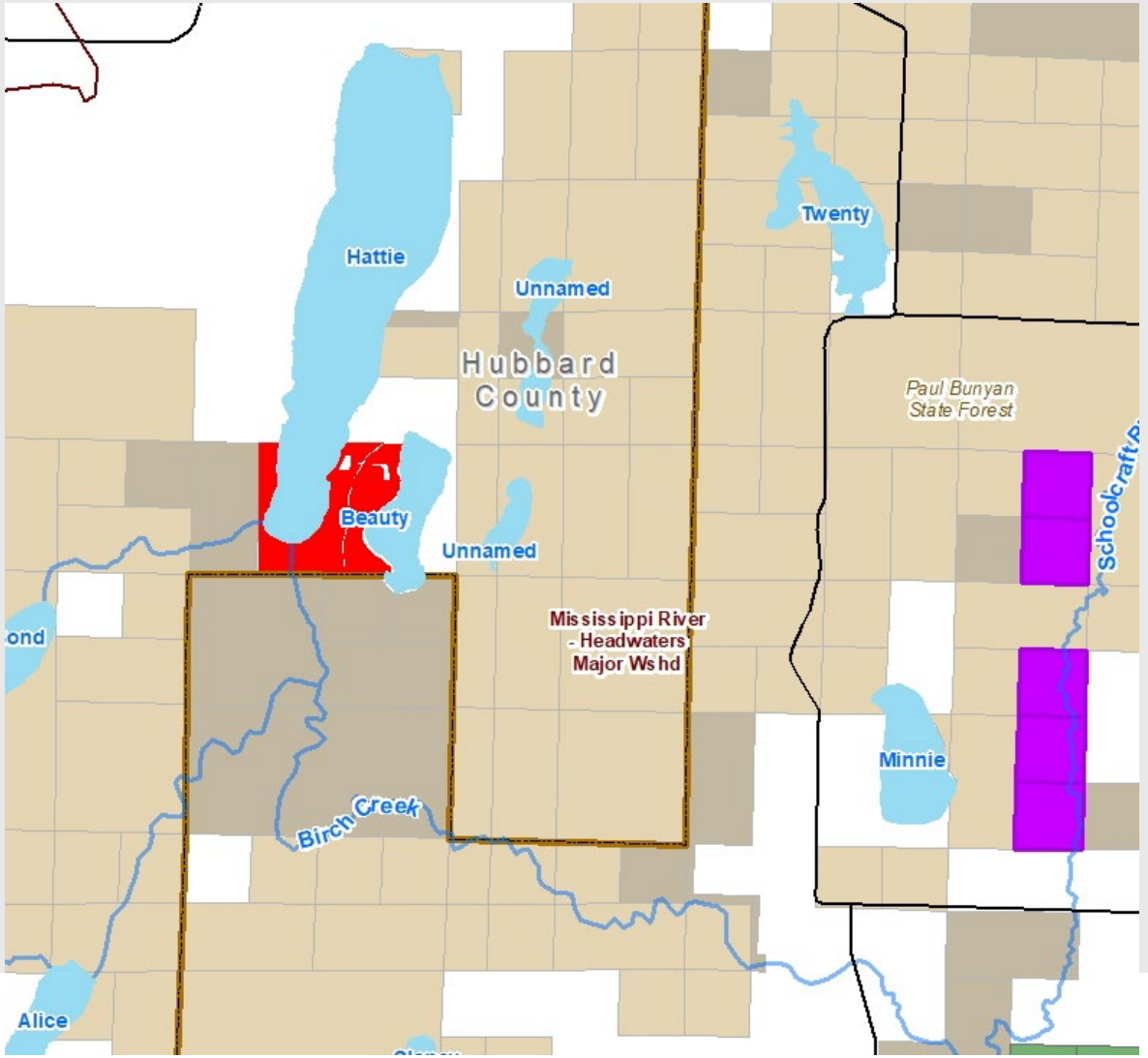




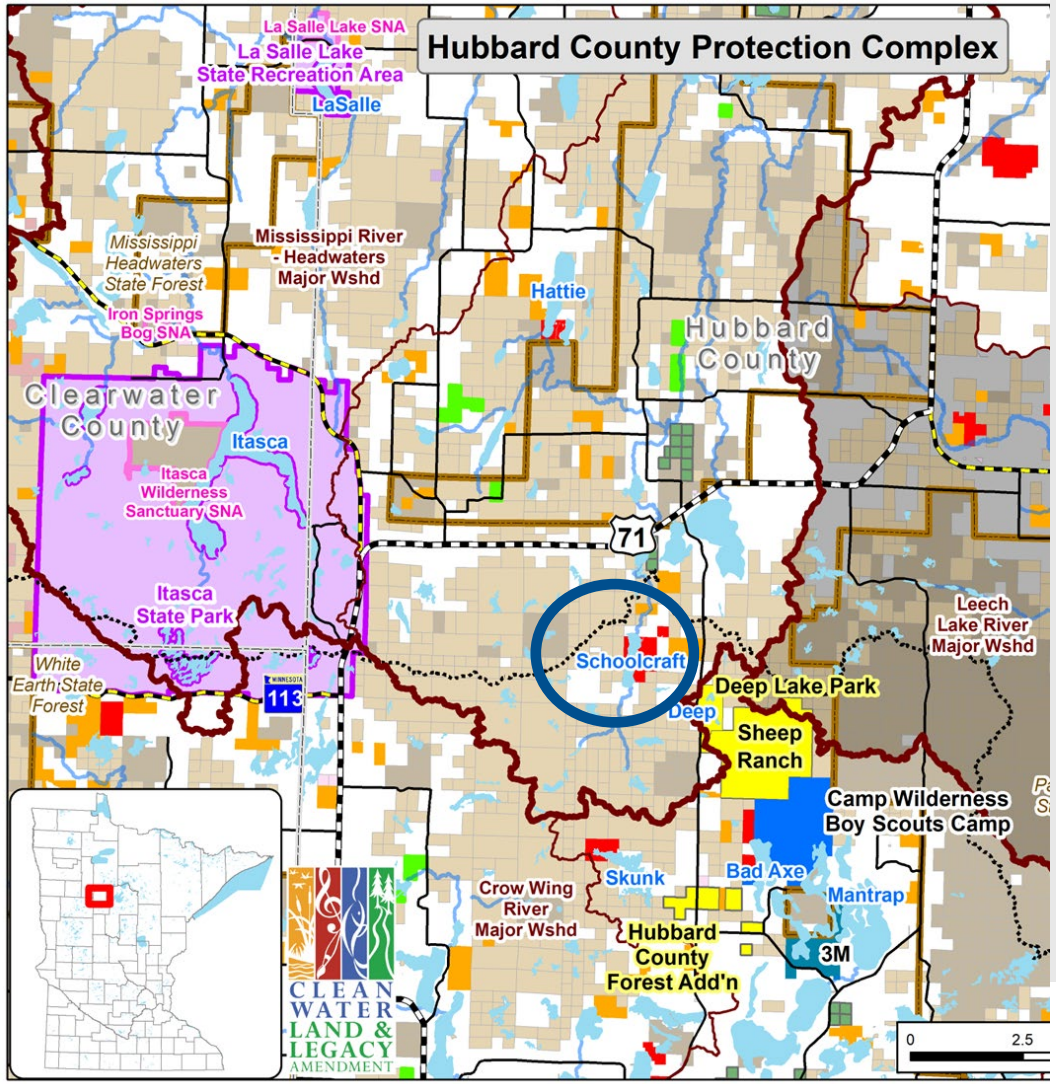


Shane Foley Easement

- Property includes both sides of both the inlet and outlet of the lake, the lake starts from a spring in a wetland complex a mile or so away.
- The lake drains into Birch Creek, which drains into the Schoolcraft River a couple miles away, and ultimately drains into the Mississippi just south of Bemidji.
- The property shares one property line with another private property, otherwise the boundaries are the two lakes and the Paul Bunyan State Forest. The previous owner was developing a resort on the property prior to my ownership and already had the permits secured to do it. Beauty Lake (NE) is about 10 ft deep and Lake Hattie (RD) is about 40 ft deep.
- Wildlife is abundant since it is a corridor between two lakes. Present are: bear, bobcat, wolves, coyote, otters, & turkeys

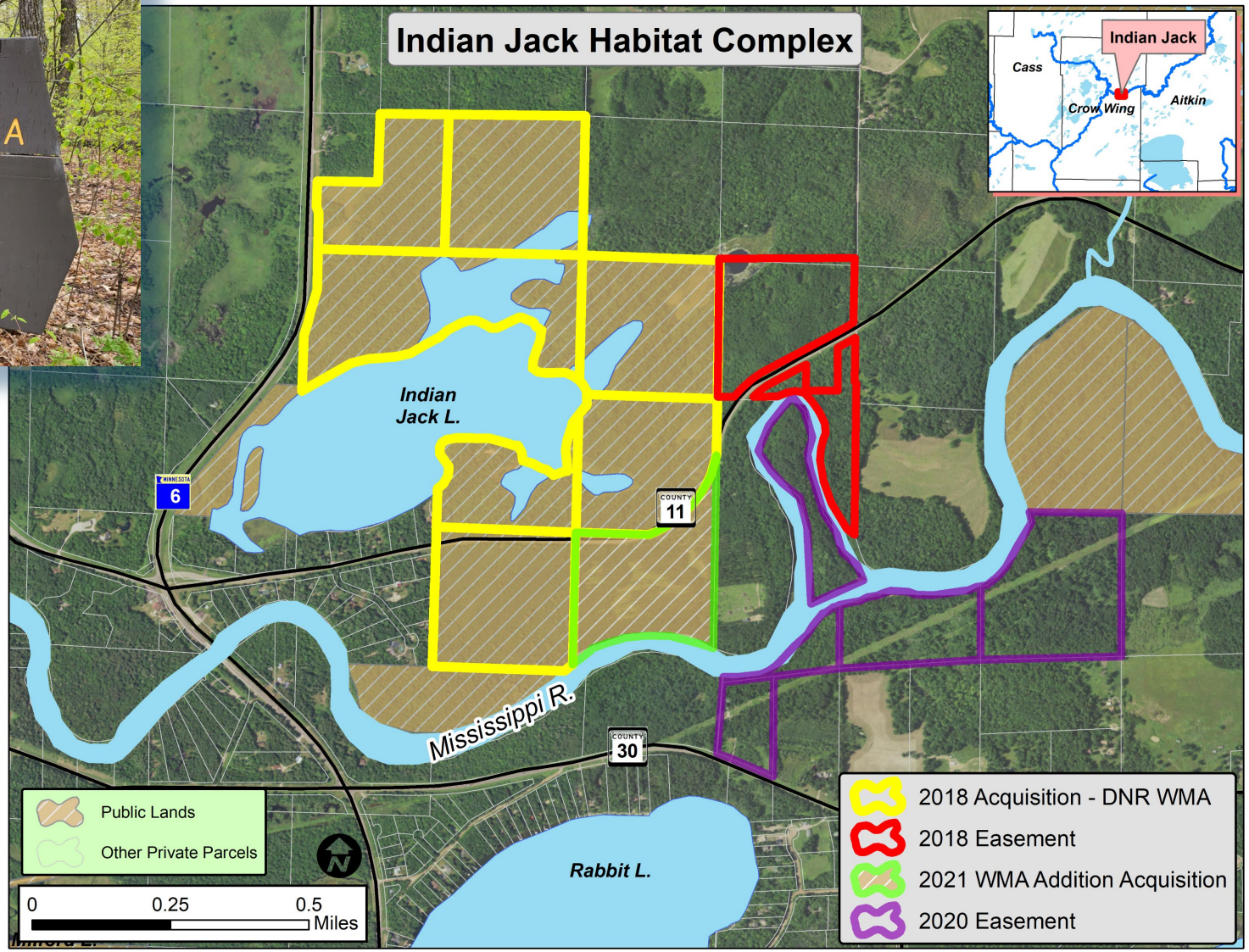


Schoolcraft Lake Easements



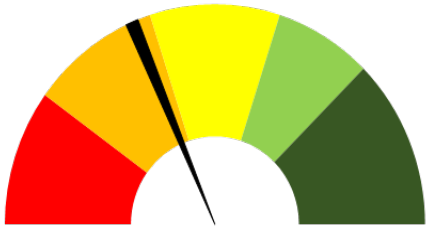
- 2 landowners: working on getting into the RIM Conservation Easement program.
- Schoolcraft Lake shoreline will be about 90% protected.
- Both landowners have continued to advocate for managing forest lands and the permanent protection that a Conservation Easement brings

Implementation Success Story: Indian Jack Lake



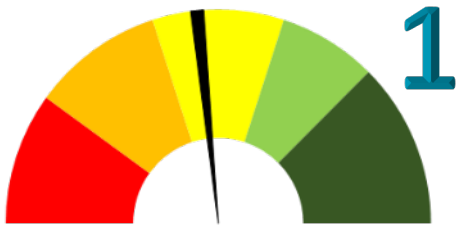
Implementation Success Story: Mississippi River

37%



w/ Public Lands

46%



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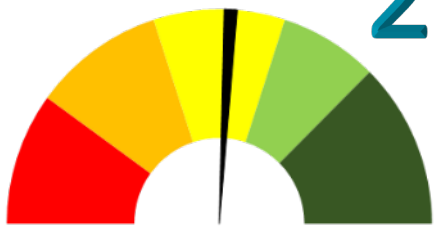
w/ 2017 Acquisition

51%



2

w/ 2017 Easement

66%

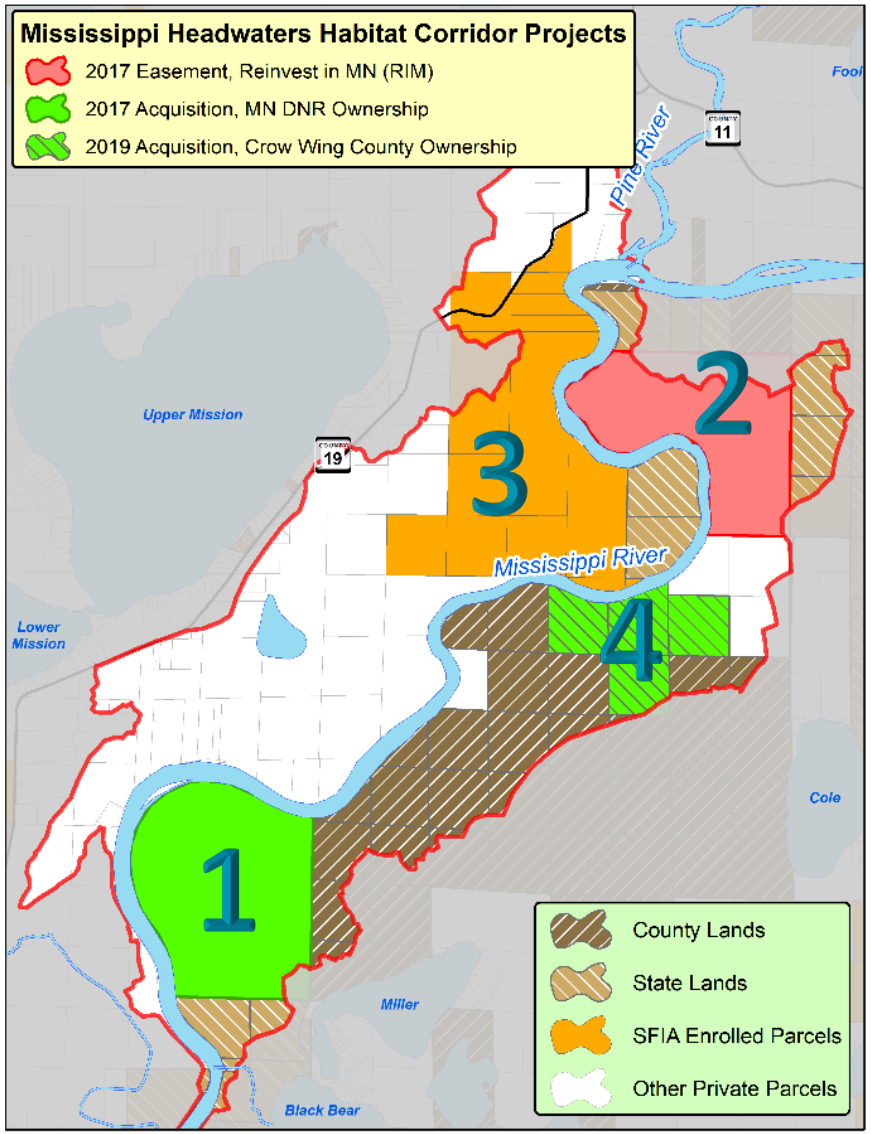
3

w/ SFIA

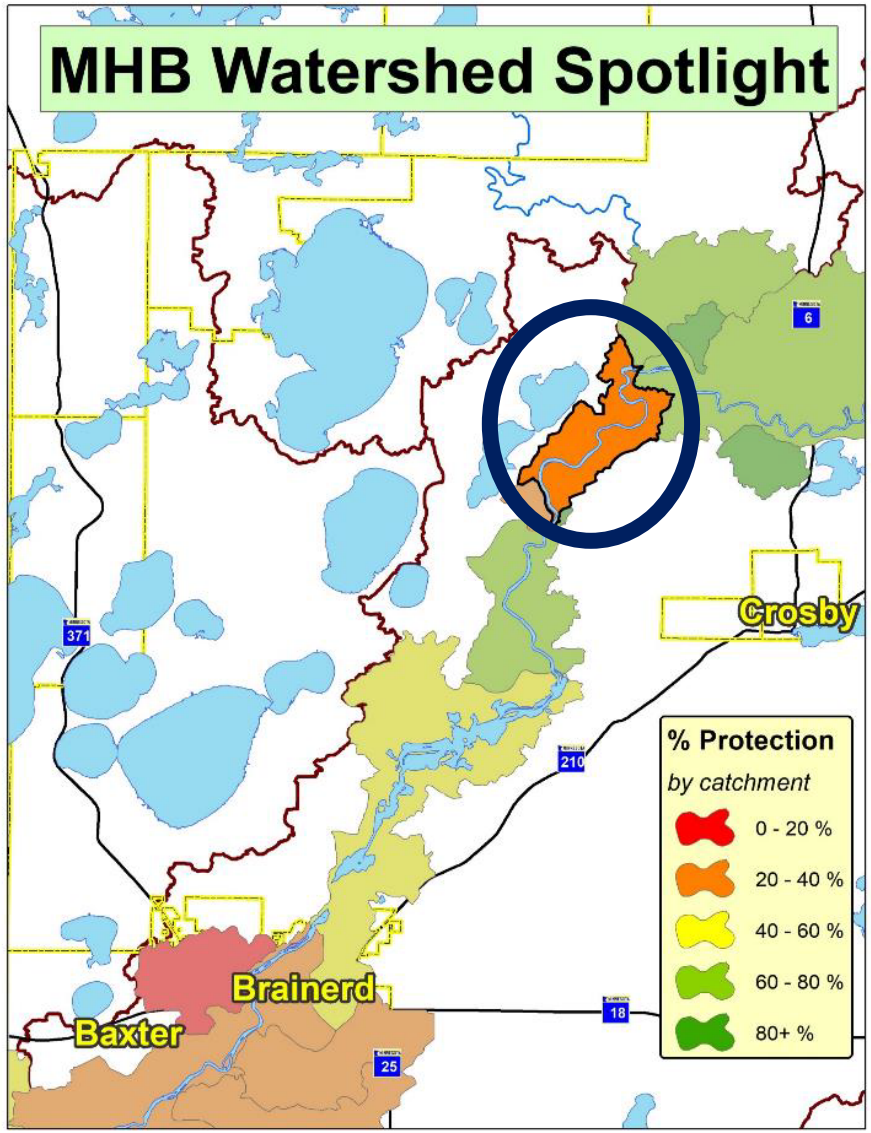
Current: 71%

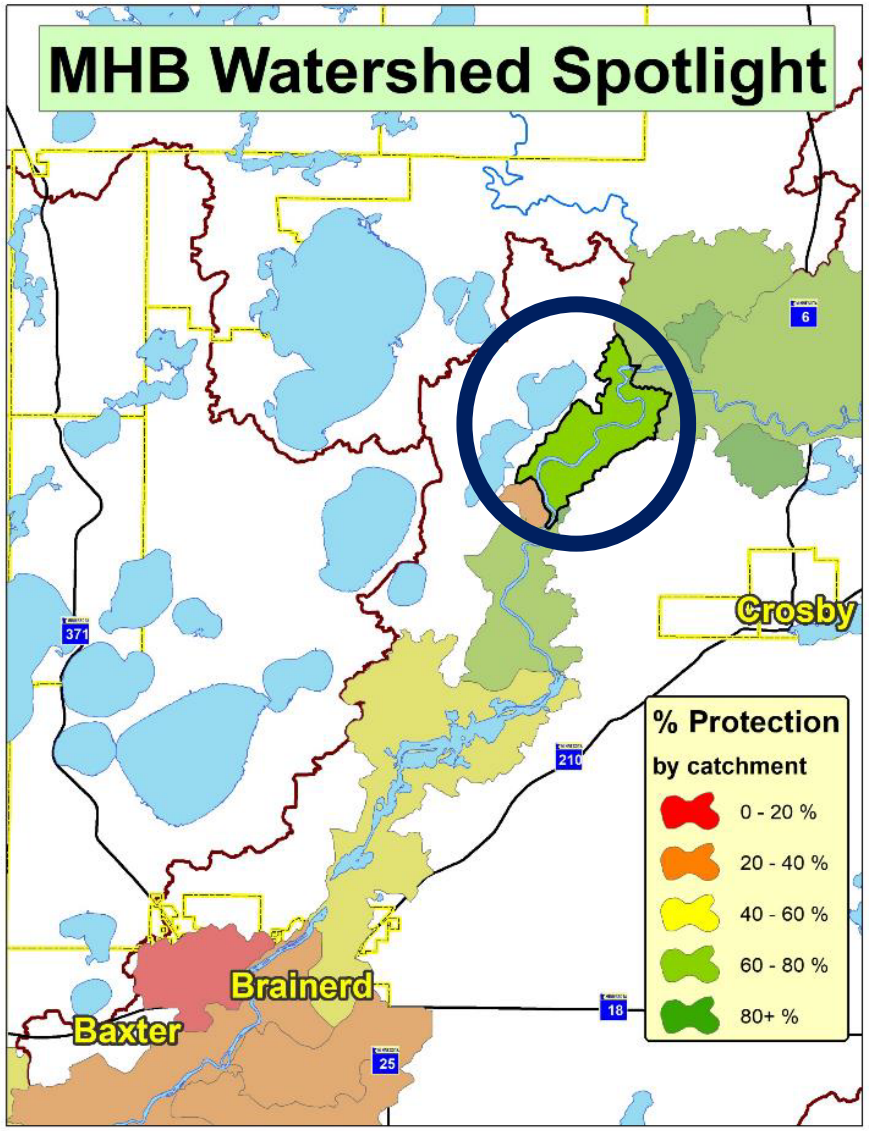
4

w/ 2019 Acquisition



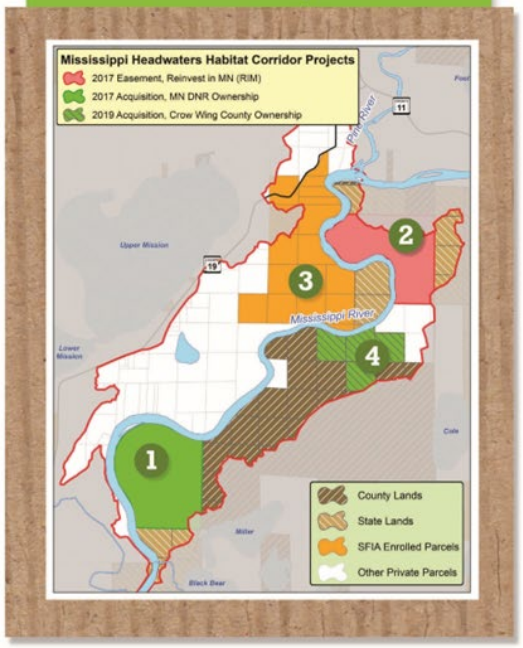
Implementation Success Story: Mississippi River

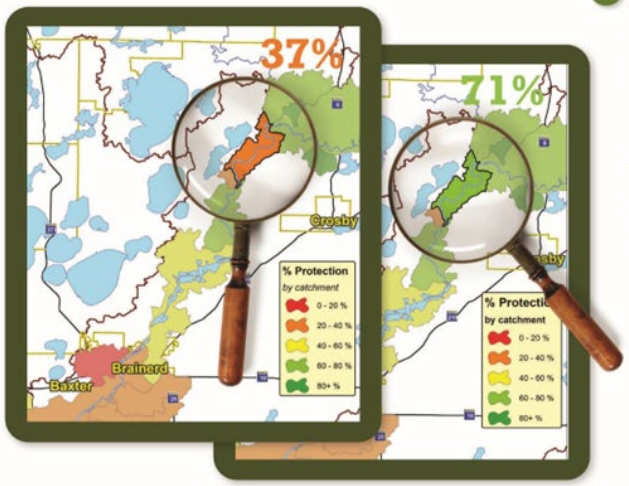




Project Spotlight

Mississippi River Targeted Easements & Acquisition



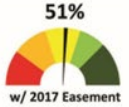


PROGRESSION OF PROTECTION

In this project spotlight, you can follow the progression of protection as lands are enrolled in conservation programs, easements, or purchased. The map to the left shows parcels along the river, the numbers show the timeline of protection steps. It begins with the watershed hovering at 37% protection.

1. 2017 Land acquisition along the riverbank. MN DNR Ownership. Protection climbs from 37% to 46%.

2. 2017 Land enrolled in RIM. (Reinvest in MN) Protection jumps from 46% to 51%.



3. Land parcels enrolled in SFIA. Sustainable Forest Incentive Act. Protection climbs from 51% to 66%.

4. 2019 Land acquisition by Crow Wing County Protection has nearly reached the target goal of 75% protection.

CONSERVATION TEAMWORK

It takes a coordinated conservation team of many to move the needle, including SWCDs, Counties, NGOs, State & Federal Government Agencies, and engaged landowners.

Quality Forests + Quality Water = Quality Life

Questions?

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