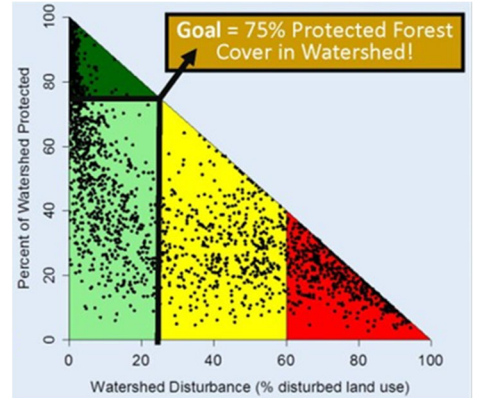


## Protection Summary: 2016 - 2022

### Background:

The start of the modern protection methodology occurred in 2010 with a study of over 1300 lakes by the Minnesota Department of Natural Resources (DNR) Fisheries Research Unit. The study revealed that phosphorus concentrations in lakes are directly related to land use disturbance in the watershed. Phosphorus concentrations become elevated when land use disturbance reaches 25% of a lake's watershed and are greatly elevated when land use disturbances exceed 60%. These thresholds set the foundation for identifying appropriate water quality management strategies for lakes. Lakes with undisturbed watersheds, with high levels of these "protected" lands, typically produce good water quality. Protected Lands include public lands, public waters, wetlands on private lands, permanent conservation easements, lands owned by non-governmental conservation organizations (such as the Minnesota Land Trust and The Natural Conservancy) and lands enrolled in the Sustainable Forest Incentives Act (SFIA).

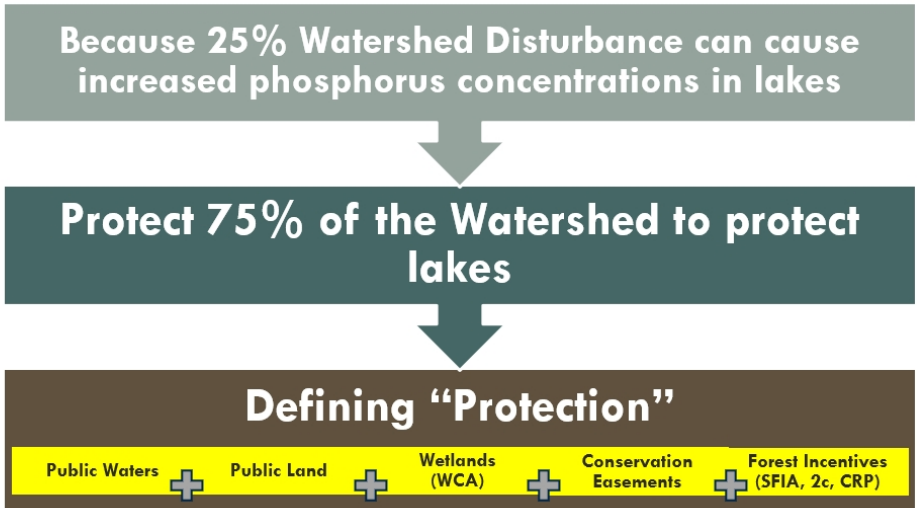
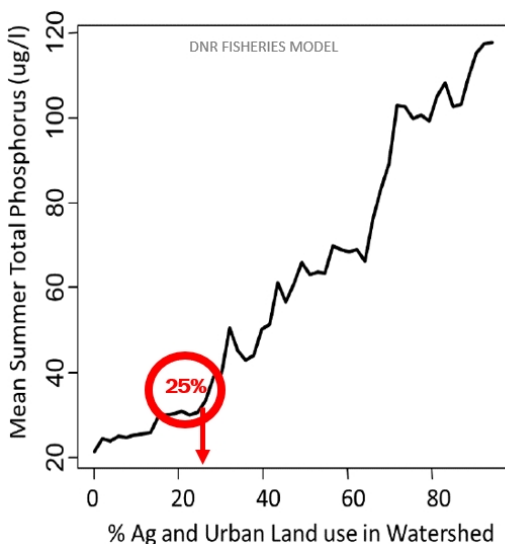
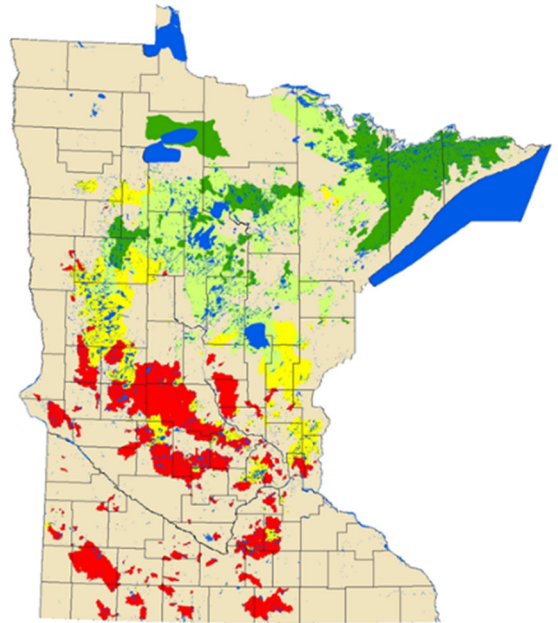
The map and graph to the right show the geographic and data breakdown of this approach for the DNR's managed fish lakes across Minnesota.



In summary, the DNR found that because 25% watershed disturbance can cause increased phosphorus concentrations in lakes, the general goal is to protect 75% of the watersheds of these lakes. The light-green areas would be considered the priority because the "protected" status is not at 75% yet, but have not been "disturbed" enough as to warrant restoration.

Source: Mike Duval & Pete Jacobson, Minnesota Department of Natural Resources (now retired). Accessible at:

[https://files.dnr.state.mn.us/fish\\_wildlife/fisheries/habitat/fishhabitatplan.pdf](https://files.dnr.state.mn.us/fish_wildlife/fisheries/habitat/fishhabitatplan.pdf)



Protection Summary for TSA 8 Watersheds:

When the DNR conducted their initial assessment in 2010, the data was limited and didn't include all of the data sets for protection that are used today. A more detailed inventory of all protected lands was initiated for Technical Services Area 8 starting in 2016 and has been updated annually since. Below is a summary of the total amount of protected lands from 2016 to 2022 for watersheds in and around TSA8.

Major Wshd / 1w1p Planning Area	Basin	2016	2022	Diff
Rapid River - Lower Rainy R.	Rainy River	92.2%	92.3%	0.1%
Rainy L. - Lower Rainy R. (Butterfly)	Rainy River	88.7%	89.7%	1.0%
Big Fork River	Rainy River	88.4%	89.3%	0.9%
Lake of the Woods	Rainy River	84.9%	85.2%	0.3%
Upper/Lower Red Lake	Red River	84.9%	85.0%	0.0%
Little Fork River	Rainy River	79.9%	82.7%	2.8%
Leech Lake River	Mississippi River Headwaters	78.3%	79.1%	0.8%
Mississippi R. - Grand Rapids	Mississippi River Headwaters	74.4%	76.2%	1.8%
Mississippi R. - Headwaters	Mississippi River Headwaters	72.0%	72.5%	0.5%
Pine River	Mississippi River Headwaters	63.9%	65.6%	1.7%
Rum River (North)	Mississippi River Headwaters	53.5%	55.3%	1.8%
Nemadji River	Lake Superior	53.1%	54.6%	1.6%
Thief River	Red River	53.3%	53.2%	-0.1%
Mississippi R. - Brainerd	Mississippi River Headwaters	50.3%	52.1%	1.7%
Kettle River	St. Croix River	49.4%	51.1%	1.7%
Crow Wing River	Mississippi River Headwaters	44.3%	46.7%	2.4%
Clearwater River	Red River	30.2%	32.1%	1.9%
Redeye River	Mississippi River Headwaters	30.1%	31.2%	1.1%
Mississippi R. - Sartell	Mississippi River Headwaters	25.3%	26.4%	1.1%

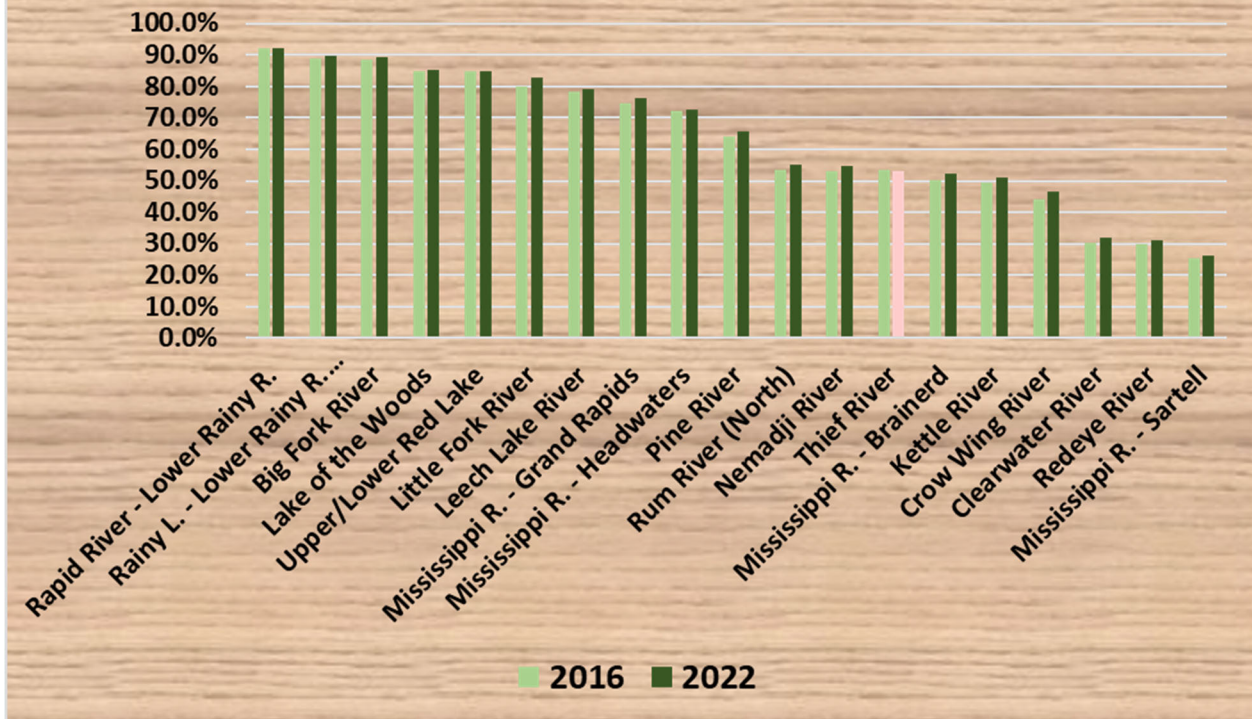
Total Protected Lands (2016) = 10,777,196 acres

Total Protected Lands (2022) = 10,980,391 acres

**Net gain: 203,195 acres**

The methodology to identify and map these protection lands and waters has also improved since 2016, however the comparison above uses the current methodology applied to the 2016 data (for example, the national wetland inventory was updated in 2017-2018 for much of TSA8). This newer dataset was applied retroactively to the 2016 data in order to better compare apples to apples. Some of the increase could be attributed to finding additional protected land datasets over time, especially easements. In addition, the large purchase of Potlatch owned lands (>70,000 acres) by the Conservation Fund occurred in 2020 which undoubtedly helped achieve the net gain shown above.

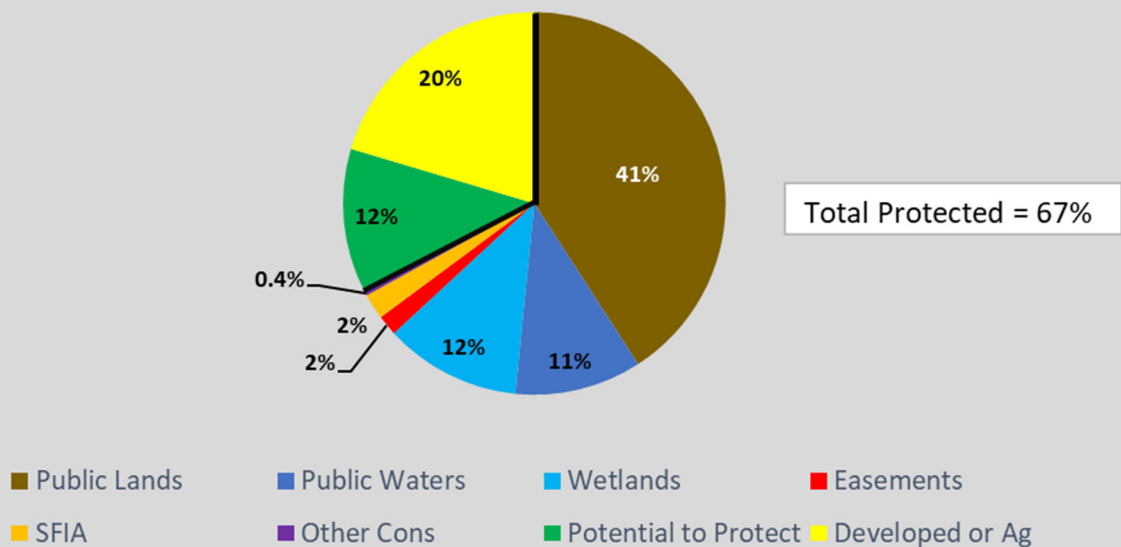
## Protection Comparison by Major Watershed/1w1p: 2016 - 2022



The maps on the following pages show the location of protection increases from 2016 to 2022. Noticeable changes have occurred in the Little Fork River, Mississippi River – Grand Rapids, Crow Wing River, Pine River, Kettle River, and Mississippi River- Brainerd Watersheds. *Note that some increases (like the ones in the Clearwater River watershed) are due to finding more existing easements since 2016.* Generally, these are a great example of the collective work of so many conservation professionals and organizations, including Soil & Water Conservation Districts.






Below is a breakdown of the current protection types as well as the potential to increase protection that exists.

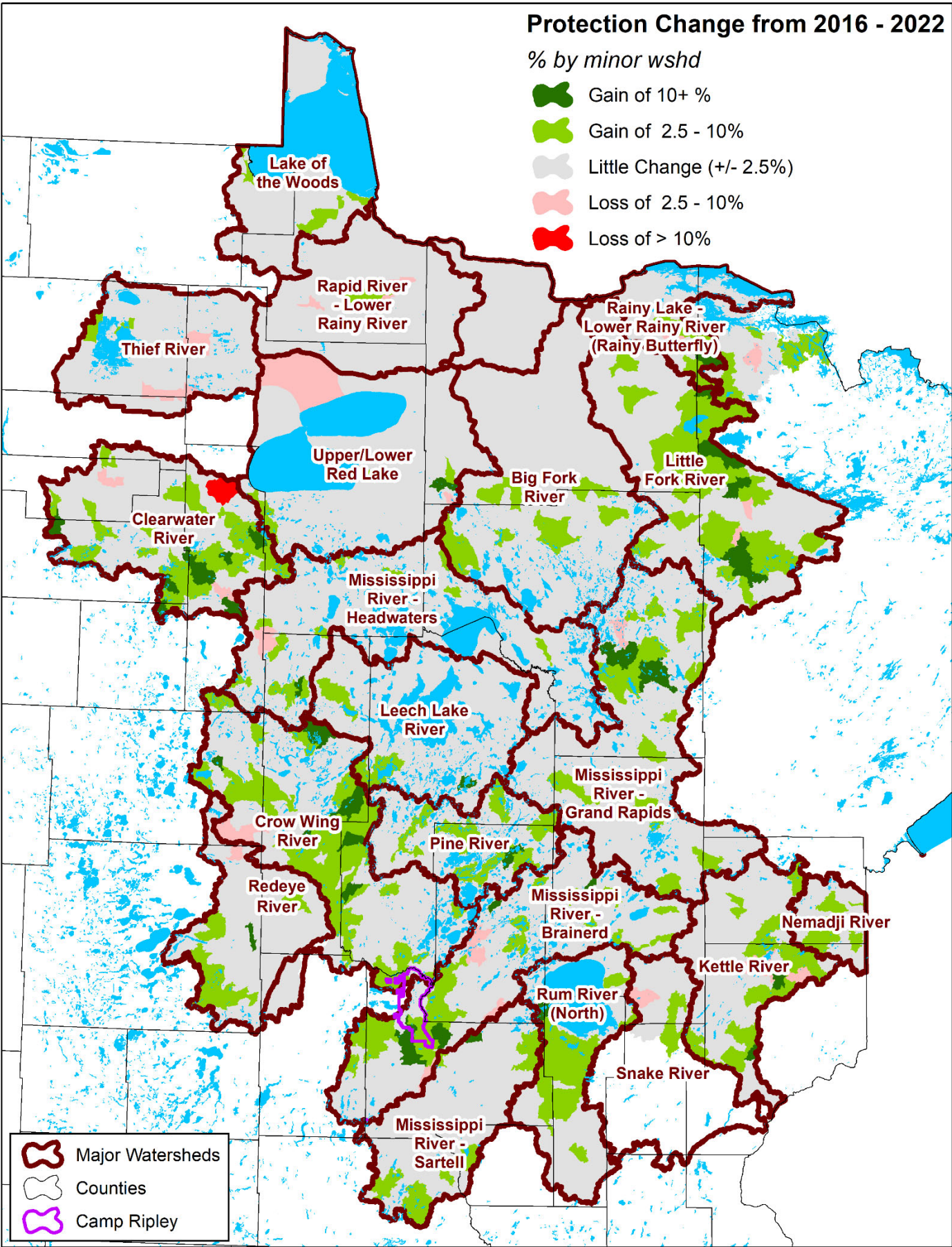
### Protected Lands Summary: Total Workarea



# Protection Change from 2016 - 2022





% by minor wshd

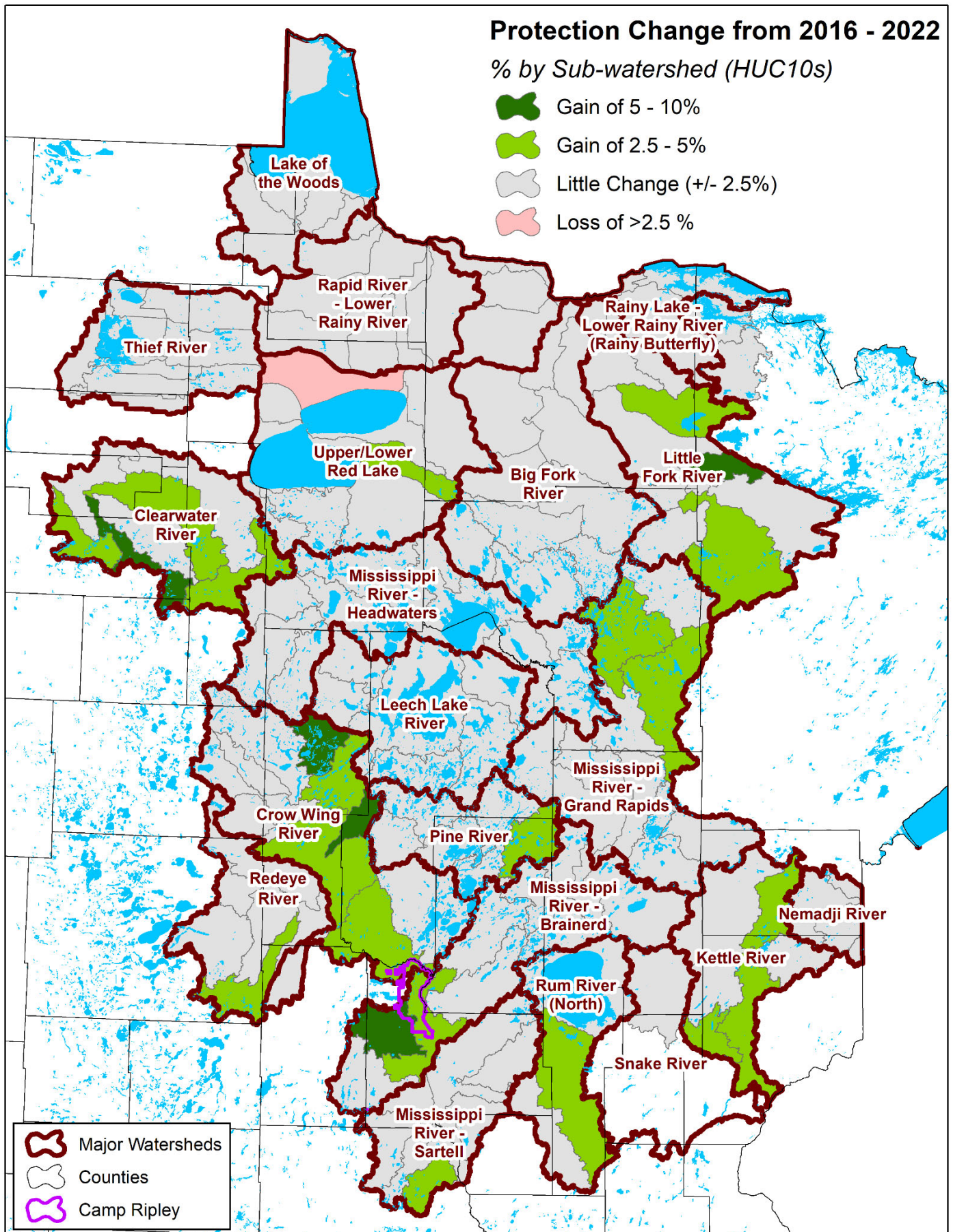
-  Gain of 10+ %
-  Gain of 2.5 - 10%
-  Little Change (+/- 2.5%)
-  Loss of 2.5 - 10%
-  Loss of > 10%



# Protection Change from 2016 - 2022






% by Sub-watershed (HUC10s)

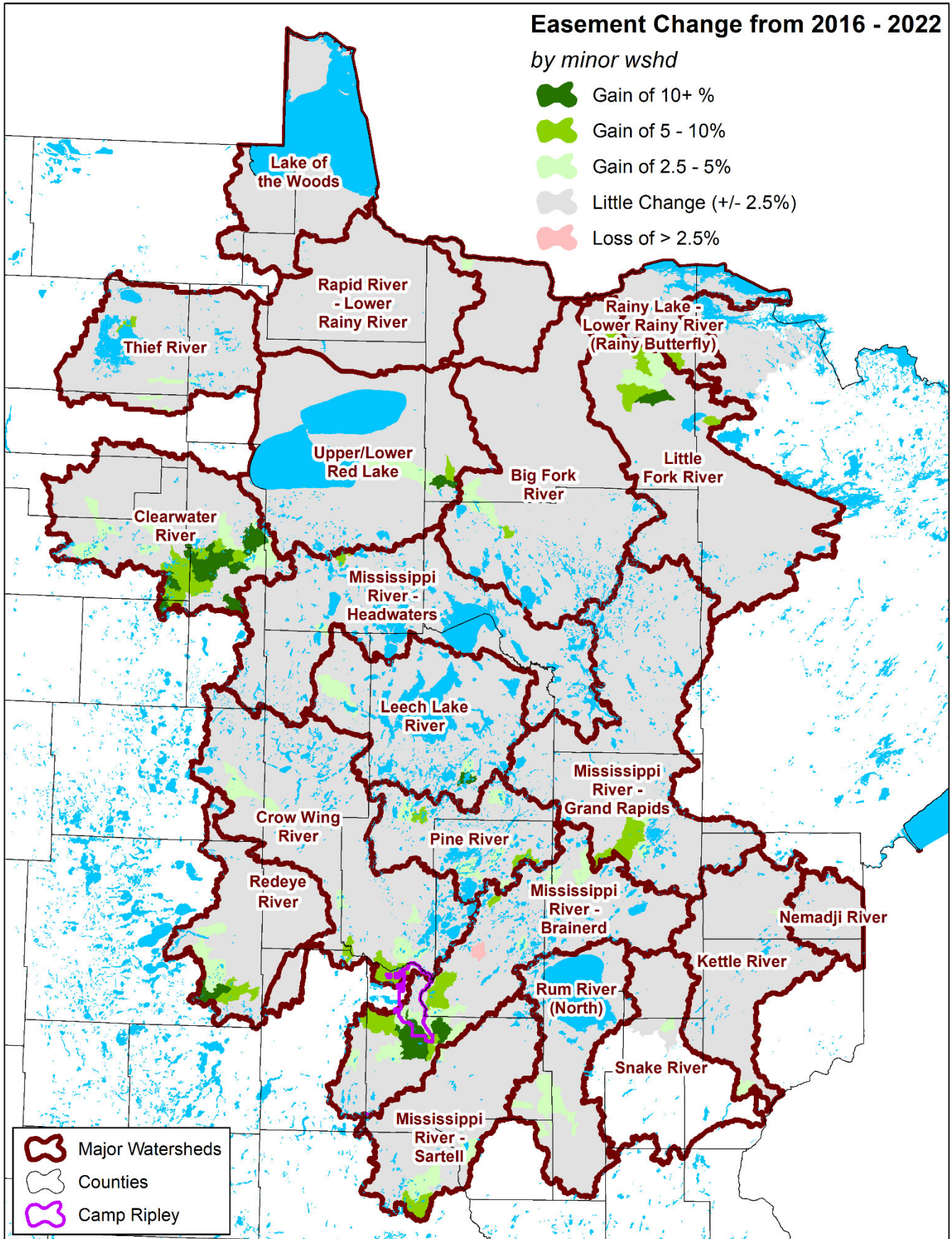
-  Gain of 5 - 10%
-  Gain of 2.5 - 5%
-  Little Change (+/- 2.5%)
-  Loss of >2.5 %



# Easement Change from 2016 - 2022

by minor wshd

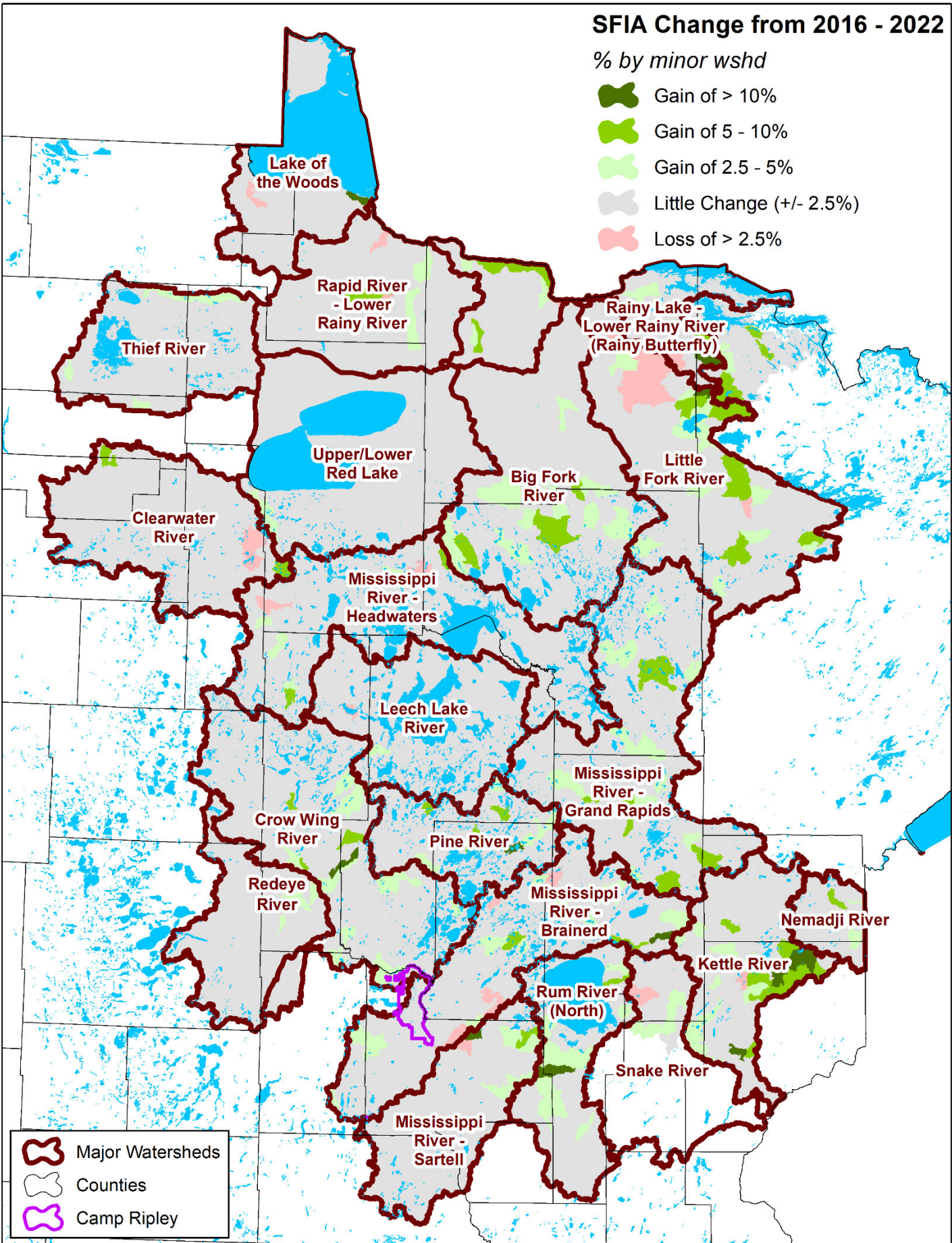
-  Gain of 10+ %
-  Gain of 5 - 10%
-  Gain of 2.5 - 5%
-  Little Change (+/- 2.5%)
-  Loss of > 2.5%



# SFIA Change from 2016 - 2022

% by minor wshd

- Gain of > 10%
- Gain of 5 - 10%
- Gain of 2.5 - 5%
- Little Change (+/- 2.5%)
- Loss of > 2.5%



- Major Watersheds
- Counties
- Camp Ripley

*Protection Success Stories:*

On the following pages are zoomed in examples showing in more detail the increases in protection from 2016-2022. They highlight a number of different geographies, project goals, resource types, geomorphic conditions, programs, conservation tools, funding sources, and partners.