

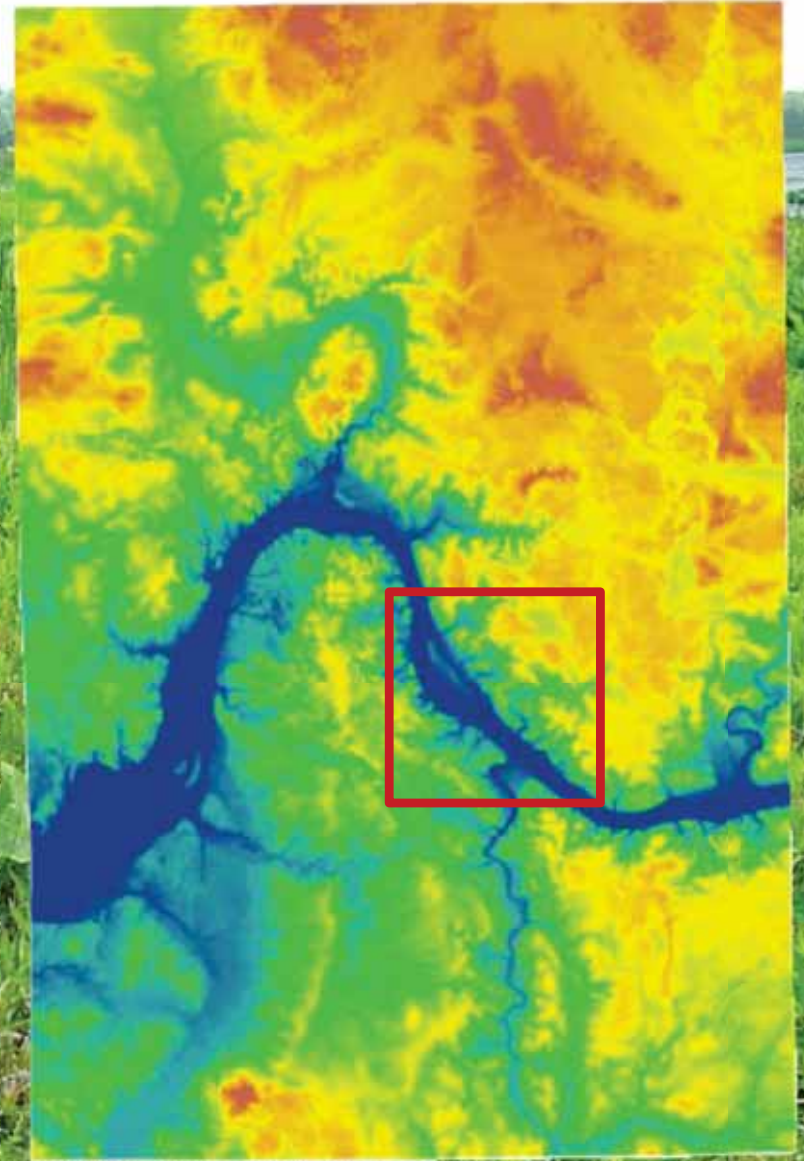


Ada Township, Michigan

What property owners can do to
preserve its scenic natural heritage

Geologic History

- Glaciers created a land of 'hill and dale'
 - Moraines (fertile)
 - Outwash
(sand/gravel/wetlands)
 - Kettles (lakes and ponds)
 - Kames (sand/gravel hills)



Presettlement Vegetation (early 1800's)

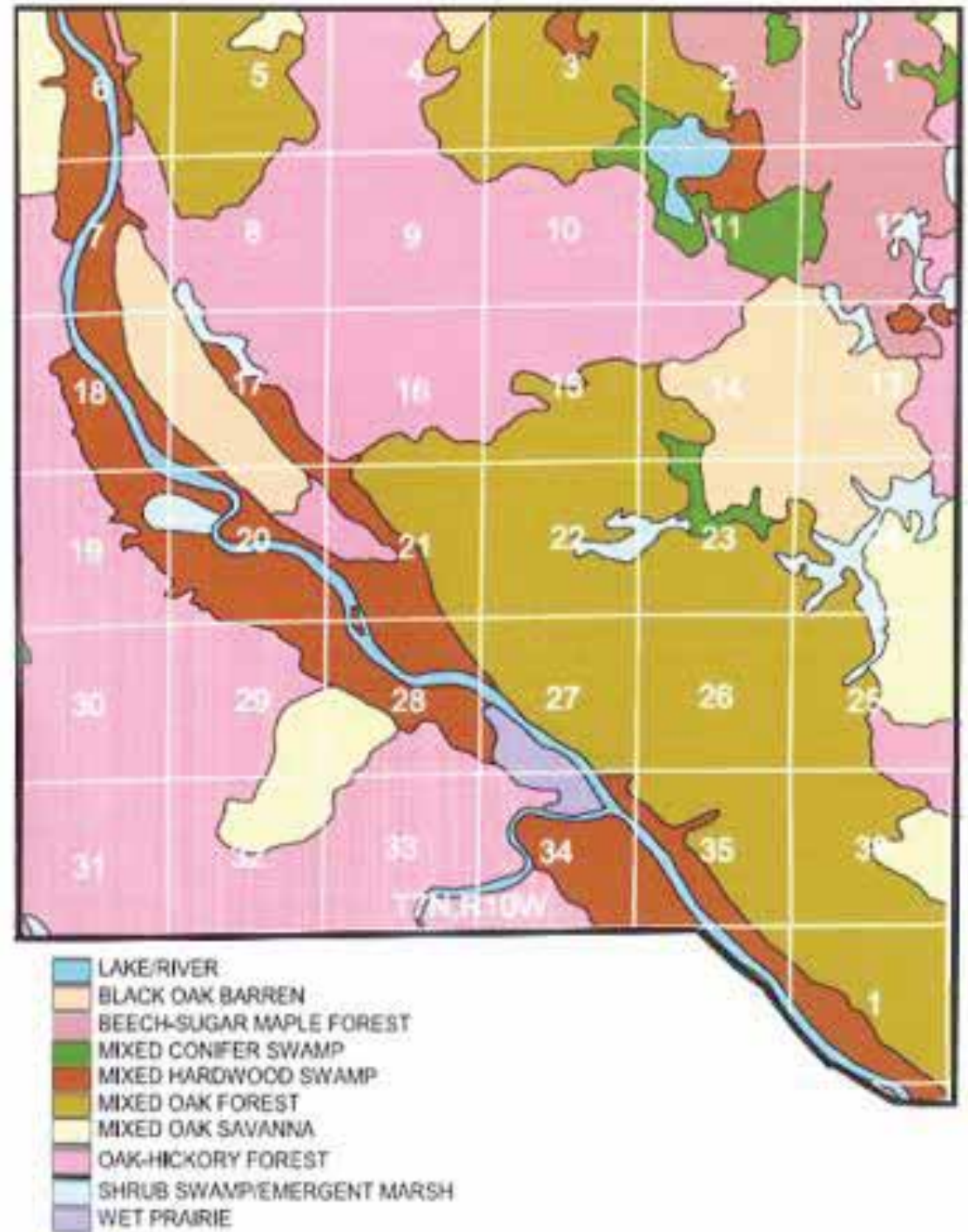


Figure 1. Dominant presettlement plant communities of Ada Township [from Comer et al. 1995]











Settlement and land use change

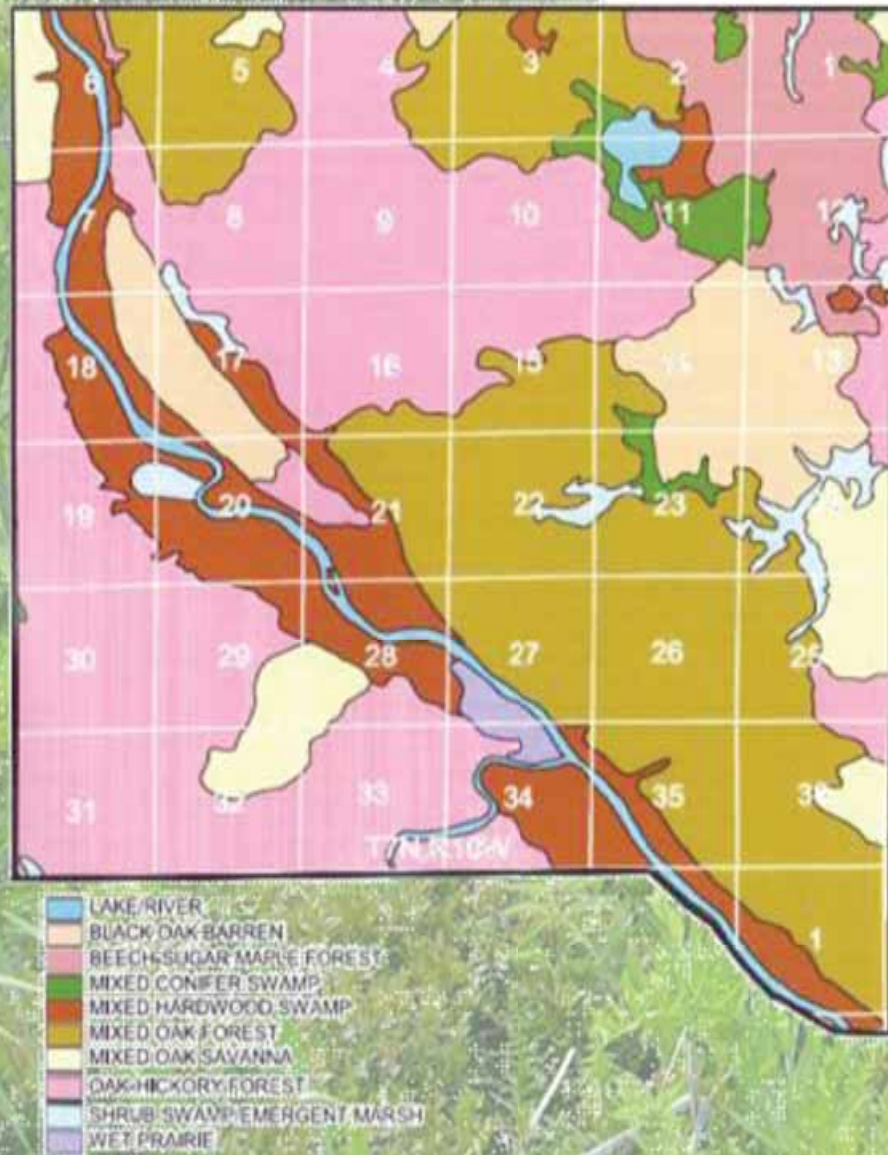
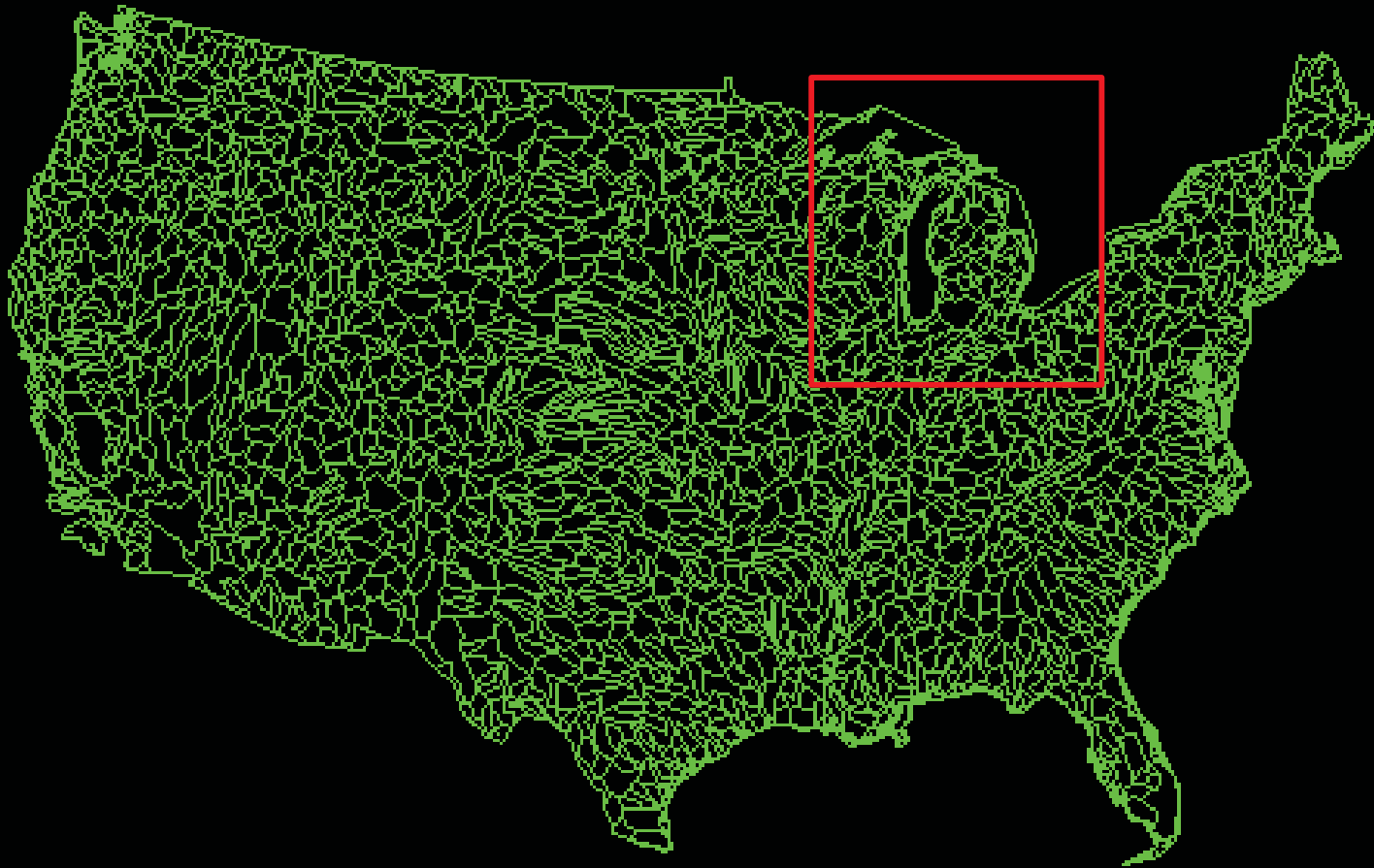


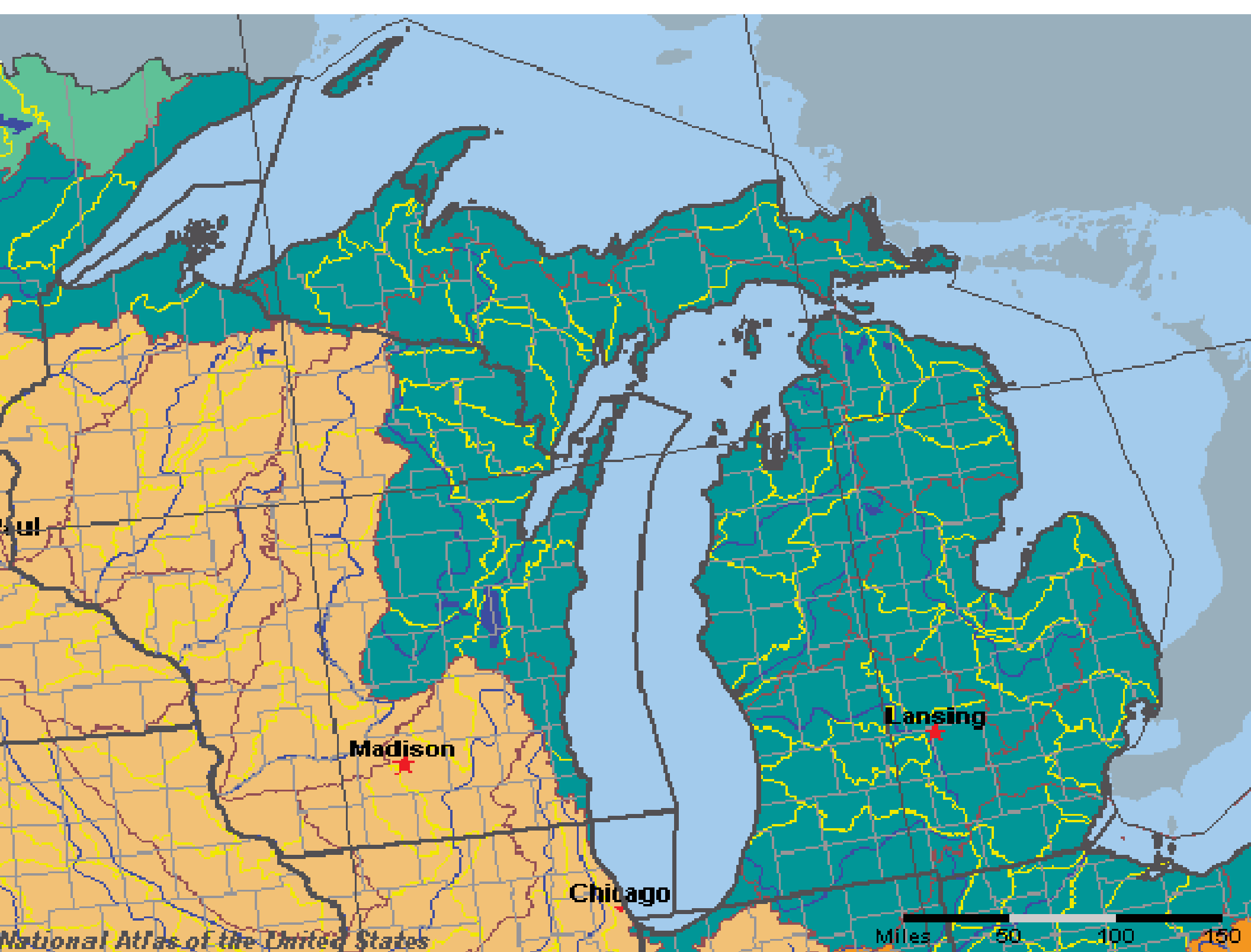
Figure 1. Wetland and settlement patterns in Ada Township, Minnesota, 1990-2000.

Taking a watershed perspective

Hydrologic Units map



Watersheds are topographical and hydrological units that integrate the landscape into nested sets of drainages.



ul

Madison

Lansing

Chicago

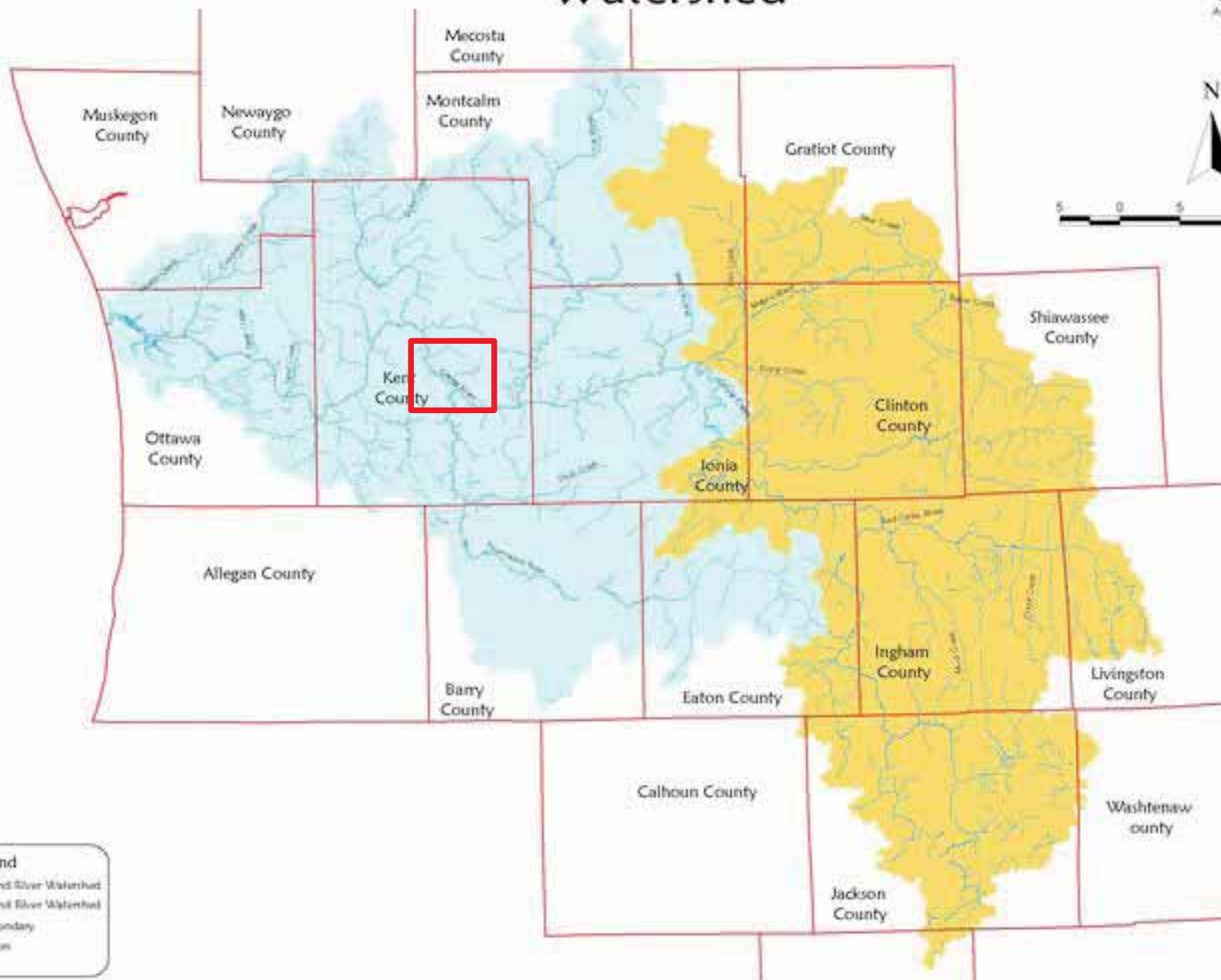


Lower Grand River
Watershed Project

Lower Grand River and Upper Grand River Watershed

Base Information
Michigan Center For Geographic Information
Michigan Geographic Data Library

Grand Valley State University
Annis Water Resources Institute
Information Services Center



Legend

- Lower Grand River Watershed
- Upper Grand River Watershed
- County Boundary
- Water Stream

fitch

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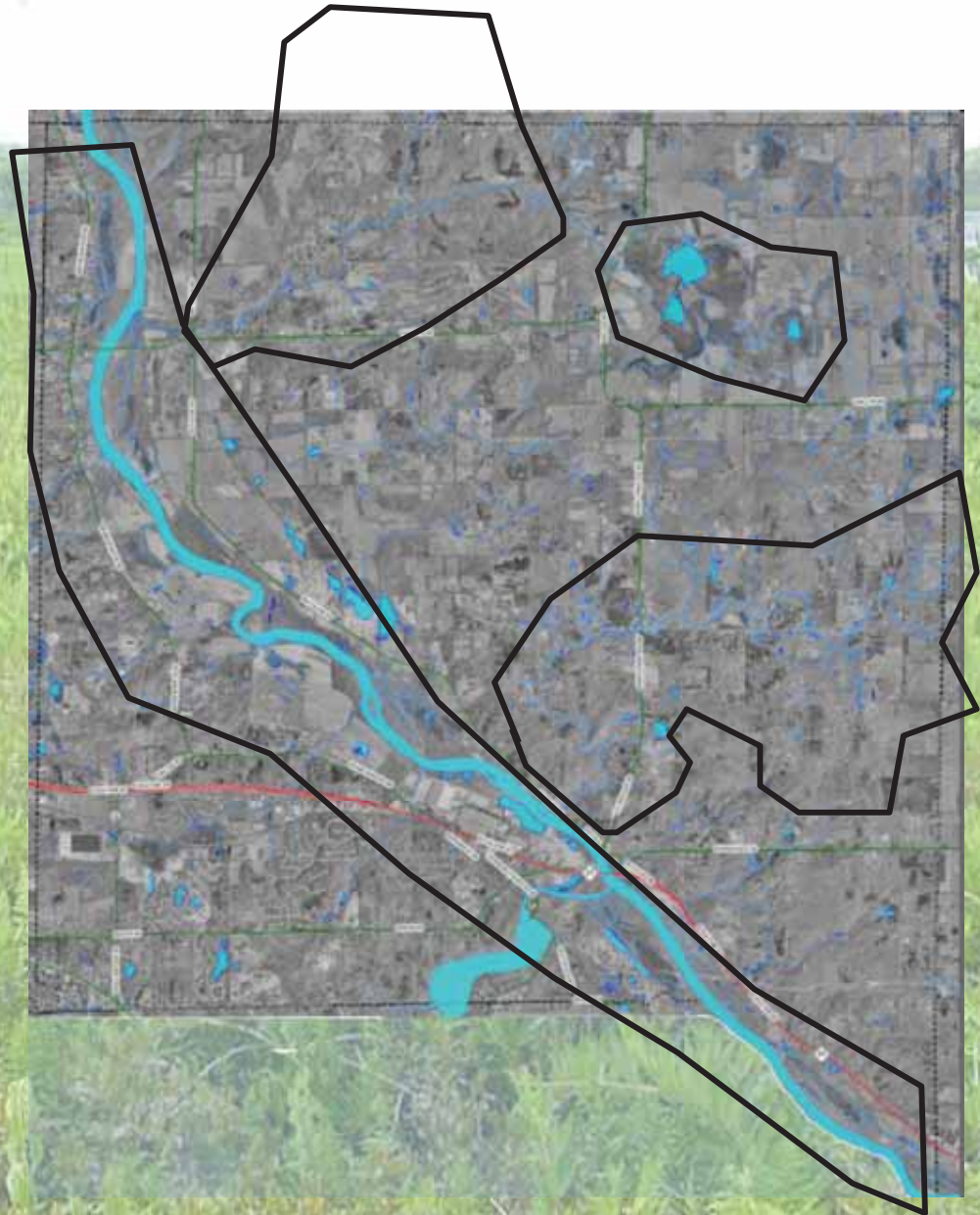
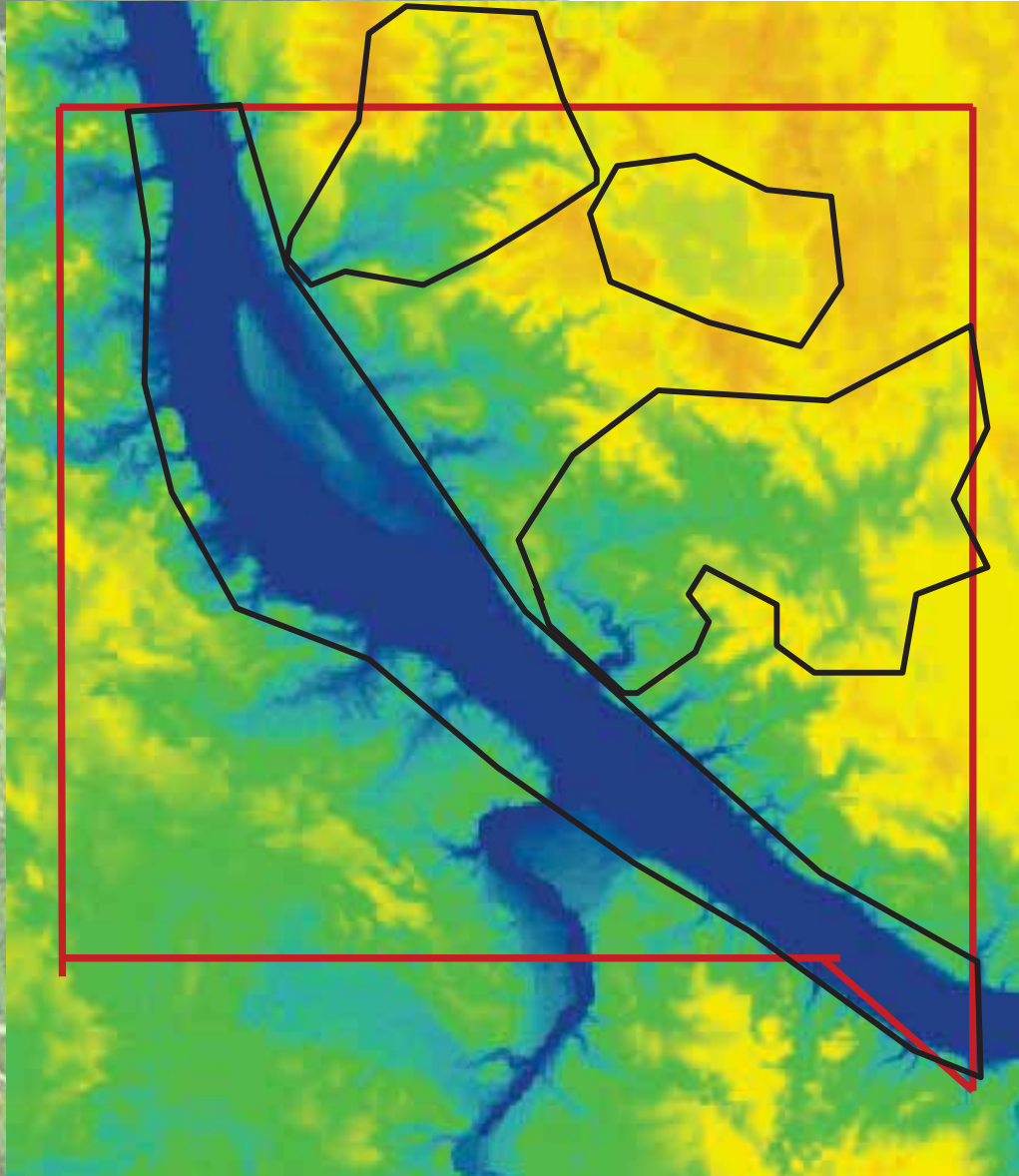


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Ada's key watershed/natural area units



Threats to watersheds and natural areas

- Urbanization and development
 - increased impermeable surfaces cause runoff.
- Increased runoff causes:
 - Warmer stream temperatures
 - Creek flooding
 - Erosion
 - Sedimentation
 - Introduction of pollutants
- Excess nutrients from fertilizers pollute wetlands, creeks, and Grand River.



Non-native species

- Second largest cause of species extinctions globally.
- Locally, invasive species displace the diverse native species that make Ada's natural areas special.
- Some follow disturbance... some invade on their own!





What can landowners do?

Preserve!



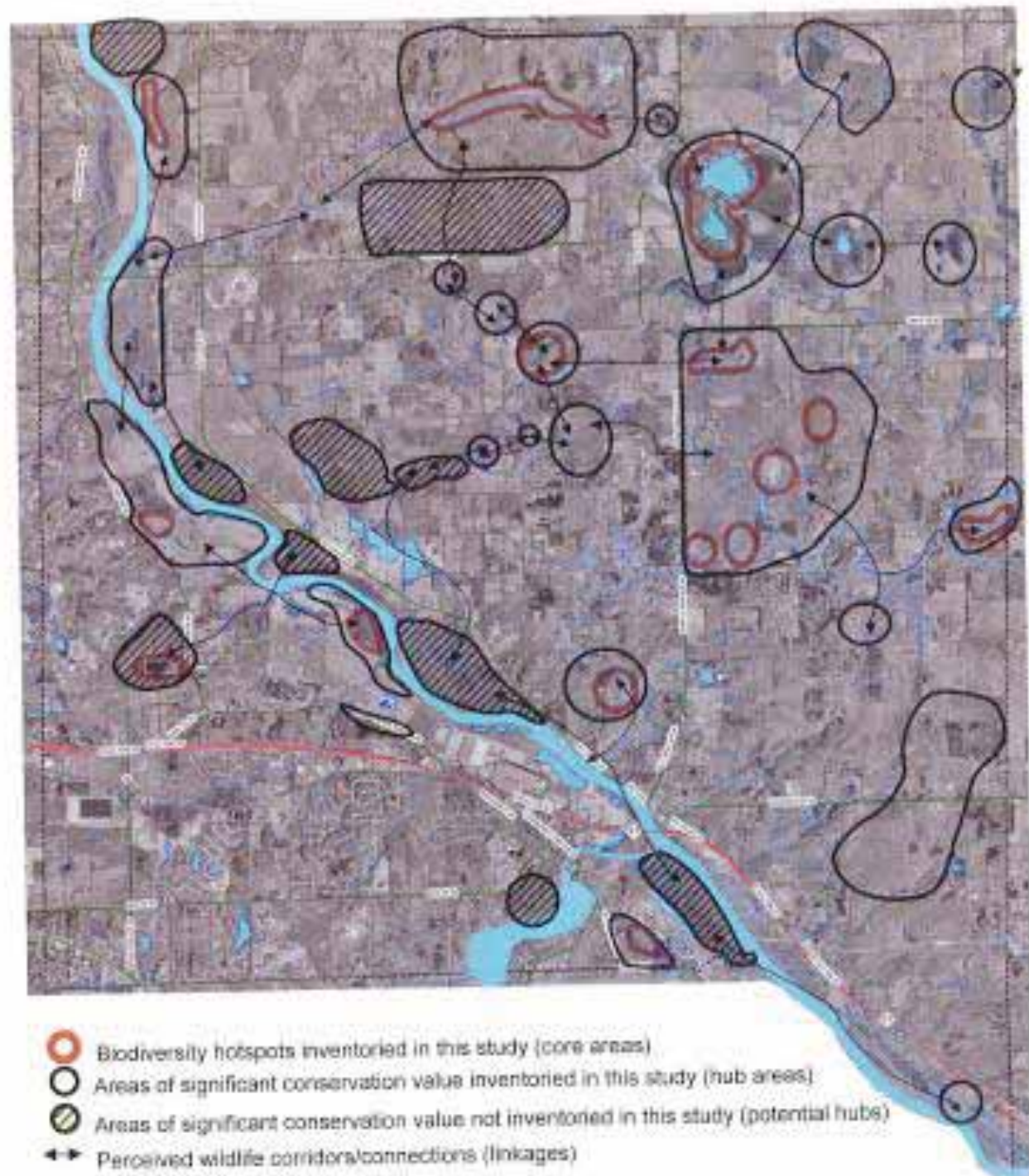
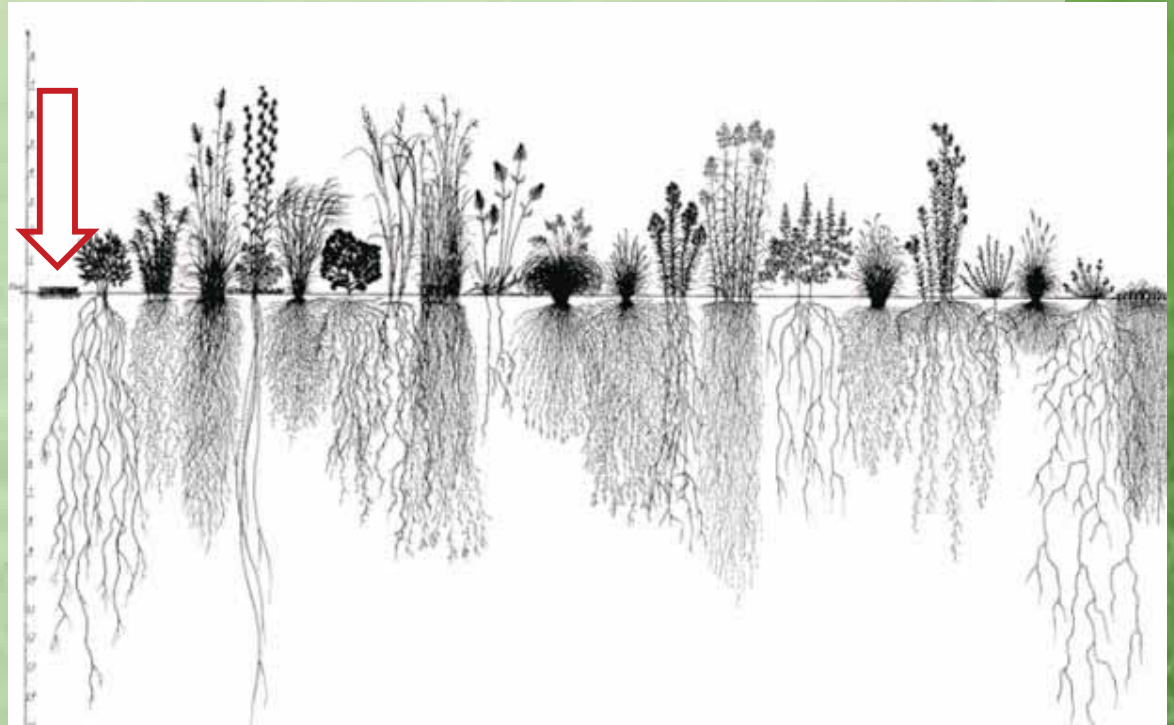


Figure 43. Potential green infrastructure for Ada Township.



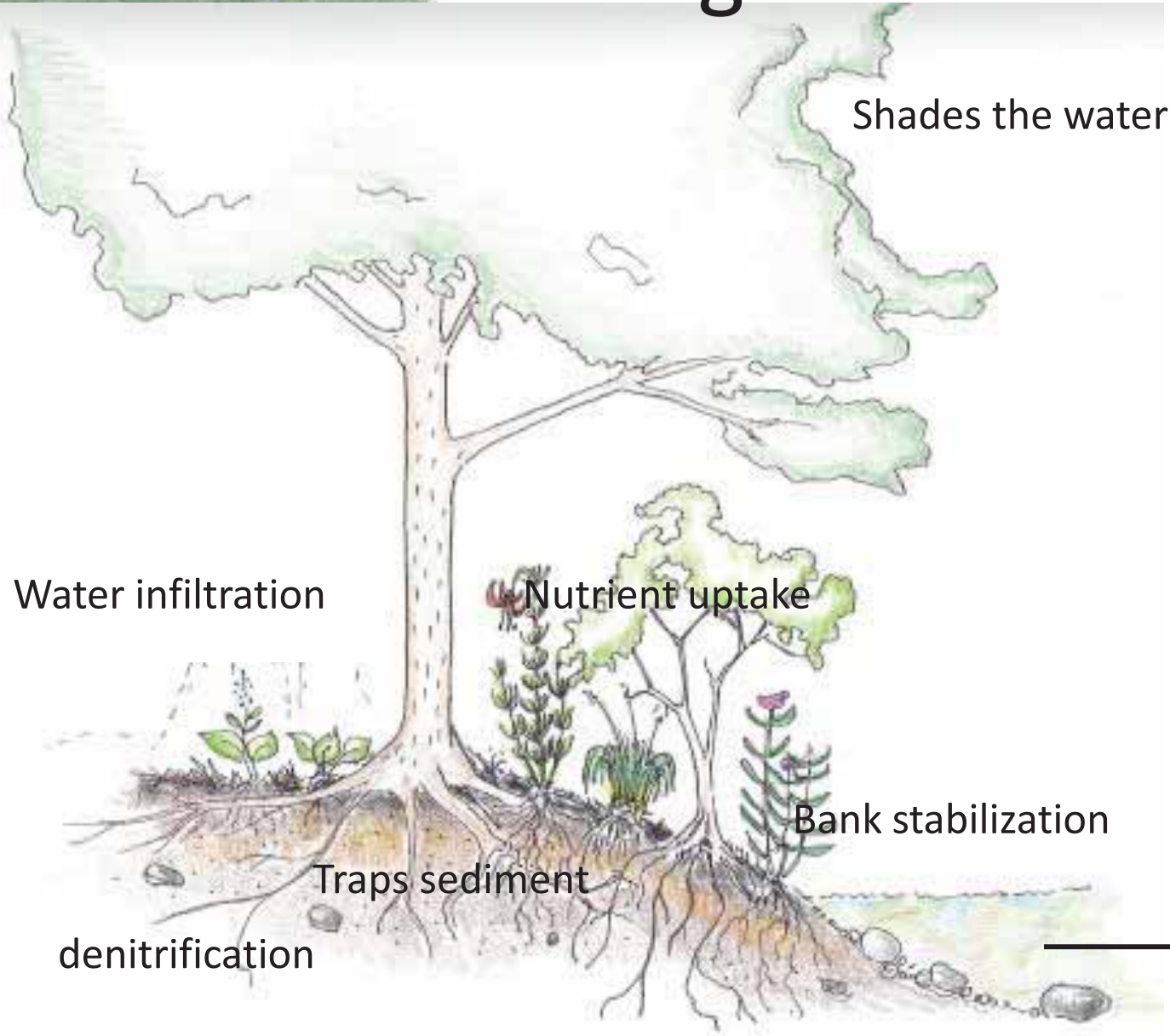
Rethinking lawn care

- Minimize lawn area
 - Biodiversity 'desert'
 - Turfgrass is a poor filter



- Fertilize thoughtfully... if at all
 - Check the weather
 - Don't fertilize in wet areas or near stream edges

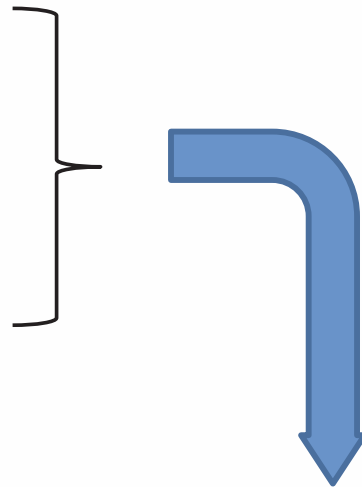
Preserve or restore streamside vegetation



→ **Results:**
Clear water
Cool water
Less sediment
'Healthy' fish and
Invertebrate community
Less nutrients
Few pathogens

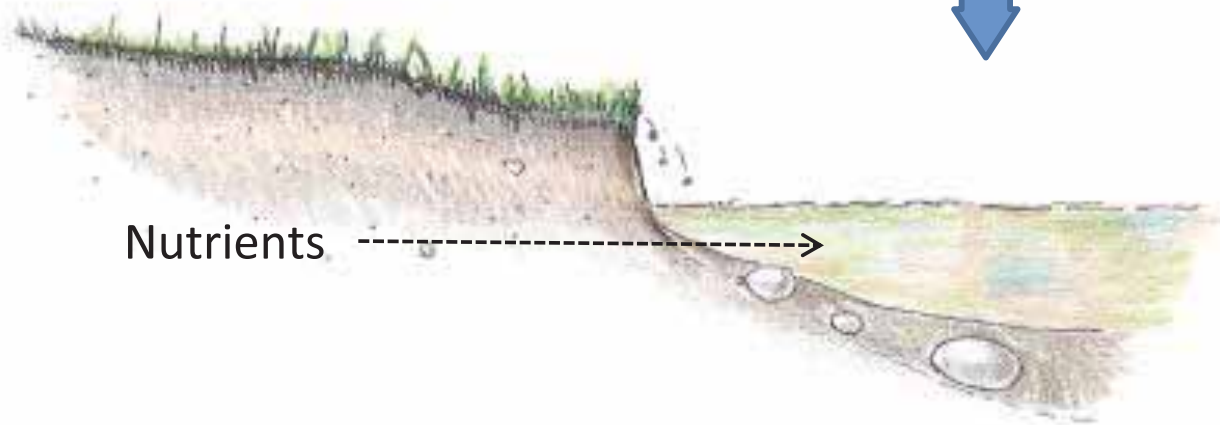
Without riparian vegetation...

Runoff
Nutrients
Animal waste
Pollutants
Sediment



Results:
Sediment
High nutrient loads
Algae
E. coli
High temperatures
Poor fish and
invertebrate
communities

Nutrients →



Rain Barrels



Rain Gardens

- Help manage stormwater on-site by slowing down and filtering runoff.
- Restore native biodiversity and natural beauty



Profile of an un Plas



Landscaping: Go native!

- Gardens with native plants...
 - Complement and restore Ada's natural beauty
 - Won't introduce invasive species into natural areas
 - Are low-maintenance
 - Encourage biodiversity (insects, birds...)
 - Create connectivity between existing natural areas









- We provide consulting, site design, and installation for restorations and gardens with native Michigan plants.
- Where our profits go:
 - Free/discounted gardens for schools and groups who can't otherwise afford them.
 - Plaster Creek Stewards

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A single maple leaf is centered on a light gray background. The leaf has a classic five-pointed shape with serrated edges. Its color is a mix of vibrant red, orange, and green, suggesting it is in the middle of autumn. The green is most prominent on the right side and along the central vein, while the red and orange are more concentrated on the left side and the tips of the lobes. The leaf's stem is a thin, dark brown line extending downwards from the base of the leaf.

Questions?