Forested Riparian Buffers

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Huron Pines

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About Huron Pines

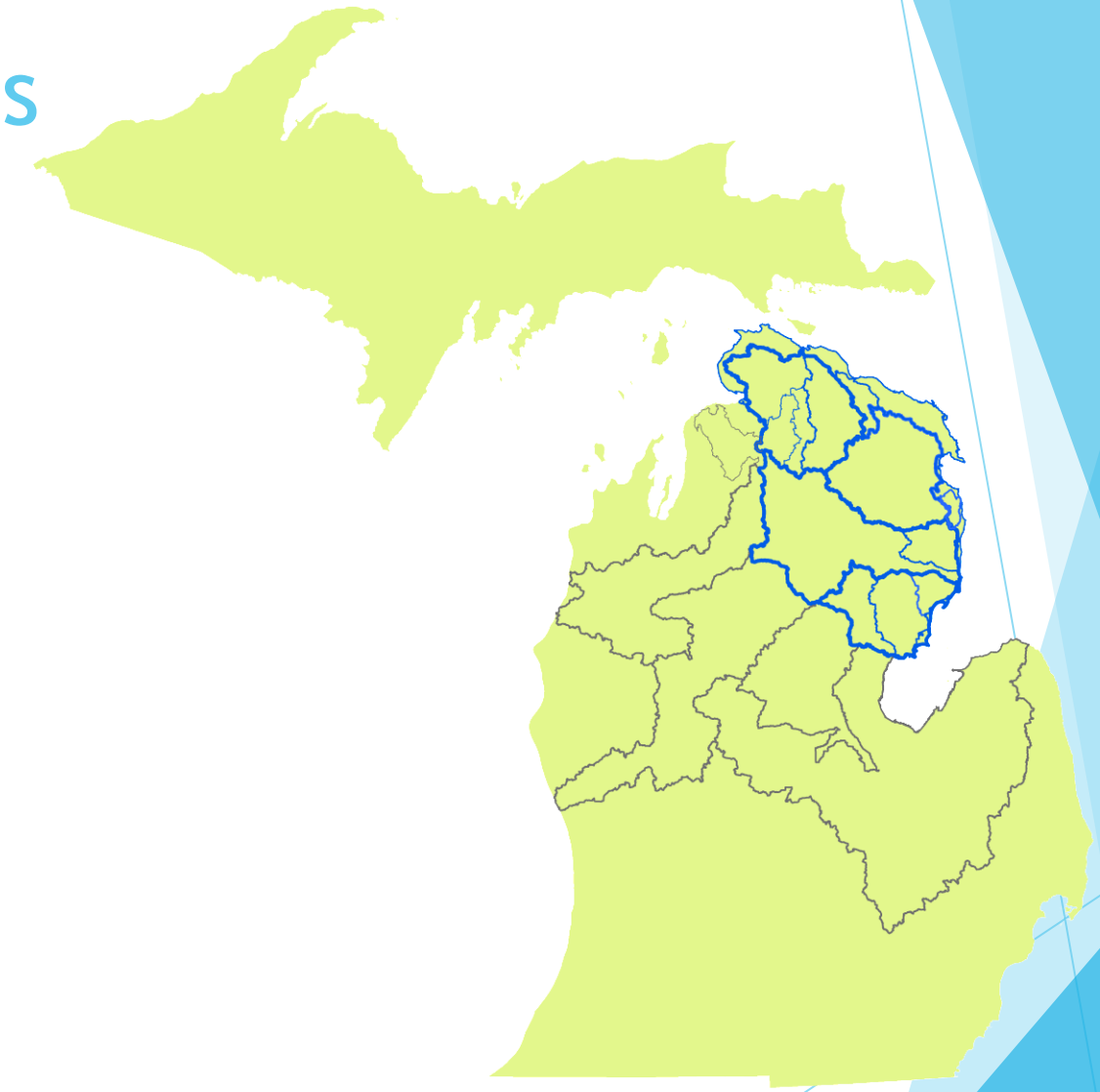
Conserving the forests, lakes, and streams of Northeast Michigan

- Nonprofit, 501(c)(3)
- 42 years in business
- 12 full-time staff plus AmeriCorps program and seasonal crew
- Projects include:
  - Northern Saginaw Bay Watershed
  - Land stewardship
  - Kirtland's Warbler Initiative

About our Watersheds

Conserving the forests, lakes, and streams of Northeast Michigan

- Mostly coldwater streams
- Stable flows
- Sandy, extremely well drained soils, small to large cobble streambeds
- Large amount of public lands
- Very rural landscape with small towns
- Only a few water quality impairments, mostly in the southeast part of our area



Outline

- Riparian Buffers: What Are They?
- Characteristics of a Healthy Buffer
- Forested Buffers and Water Quality
- When Things Go Wrong
- Including Buffers in Projects
- Regulations
- Challenges

Riparian Buffers: What Are They?

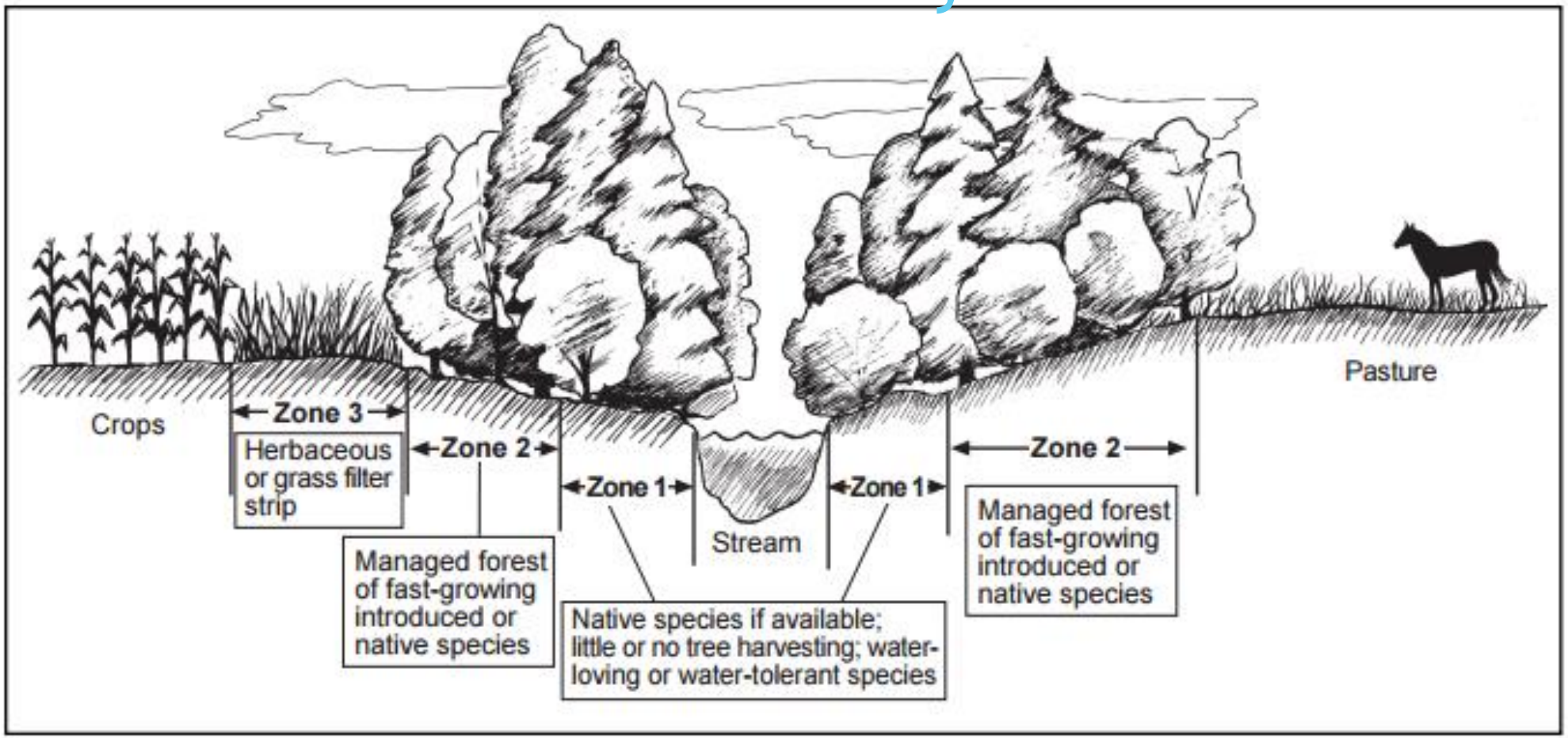
- Vegetated area on the edge of a river, lake, or stream that helps shade and protect the water from adjacent land uses.
- Can be forested, grassland, or other wetland types
- Source of energy and nutrients for aquatic organisms
- Can be artificially planted or natural growth.
- Meant to remain relatively undisturbed

Buffers Greater than 30m Protect Physical, Chemical, and Biological Integrity of Small Streams

- Remove 89% of infiltrated nitrogen (at 40+ m wide)
- Trap 85% of sediment
- Reduce channel meandering and bank erosion
- Protect against thermal change
- Maintain natural macroinvertebrate and fish communities

Sweeney, BW and Newbold, JD. 2014. *Streamside Forest Buffer Width Needed to Protect Stream Water Quality, Habitat, and Organisms: A Literature Review*

Characteristics of a Healthy Buffer



A riparian forest buffer includes zone 1, the area closest to the waterbody or course, and zone 2, the area adjacent to and up gradient of zone 1. Trees and shrubs in zone 1 provide important wildlife habitat, litter fall for aquatic organisms, and shading to lower water temperature. This zone helps stabilize streambanks and shorelines. Trees and shrubs in zone 2 (along with zone 1) intercept sediment, nutrients, pesticides, and other pollutants in surface and subsurface water flows. Zone 2 can be managed to provide timber, wood fiber, and horticultural products. A third zone, zone 3, is established if periodic and excessive water flows, erosion, and sediment from upslope fields or tracts are anticipated. Zone 3 is generally of herbaceous plants or grass and a diversion or terrace, if needed. This zone provides a "first defense" to assure proper functioning of zones 1 and 2.

ftp://ftp.wcc.nrcs.usda.gov/wntsc/strmRest/buffers/RiprarianForestBufferJobSheet.pdf

When Things Go Wrong

- Consequences to Water Quality
- Erosion
- Nutrient and soil loss/More need for fertilizers on the land

Including Buffers in Projects: Considerations

- Length of buffer: how wide, how long for best effects vs. land use needs
- Location: place to intercept the most runoff and subsurface flow
- Species composition: will grasses hold up or do you need trees and shrubs?
- Water direction and strength: do you need extra armoring to protect from erosion?
- Bank slope: think about erosion, ease of growth, ice push
- Landowner needs: how will they use the area?

Example: Pine River

- Resloped banks
- Cut sod from nearby upland areas
- Tree revetment at toe of slope
- Forest will grow in over time

Example: Rifle River

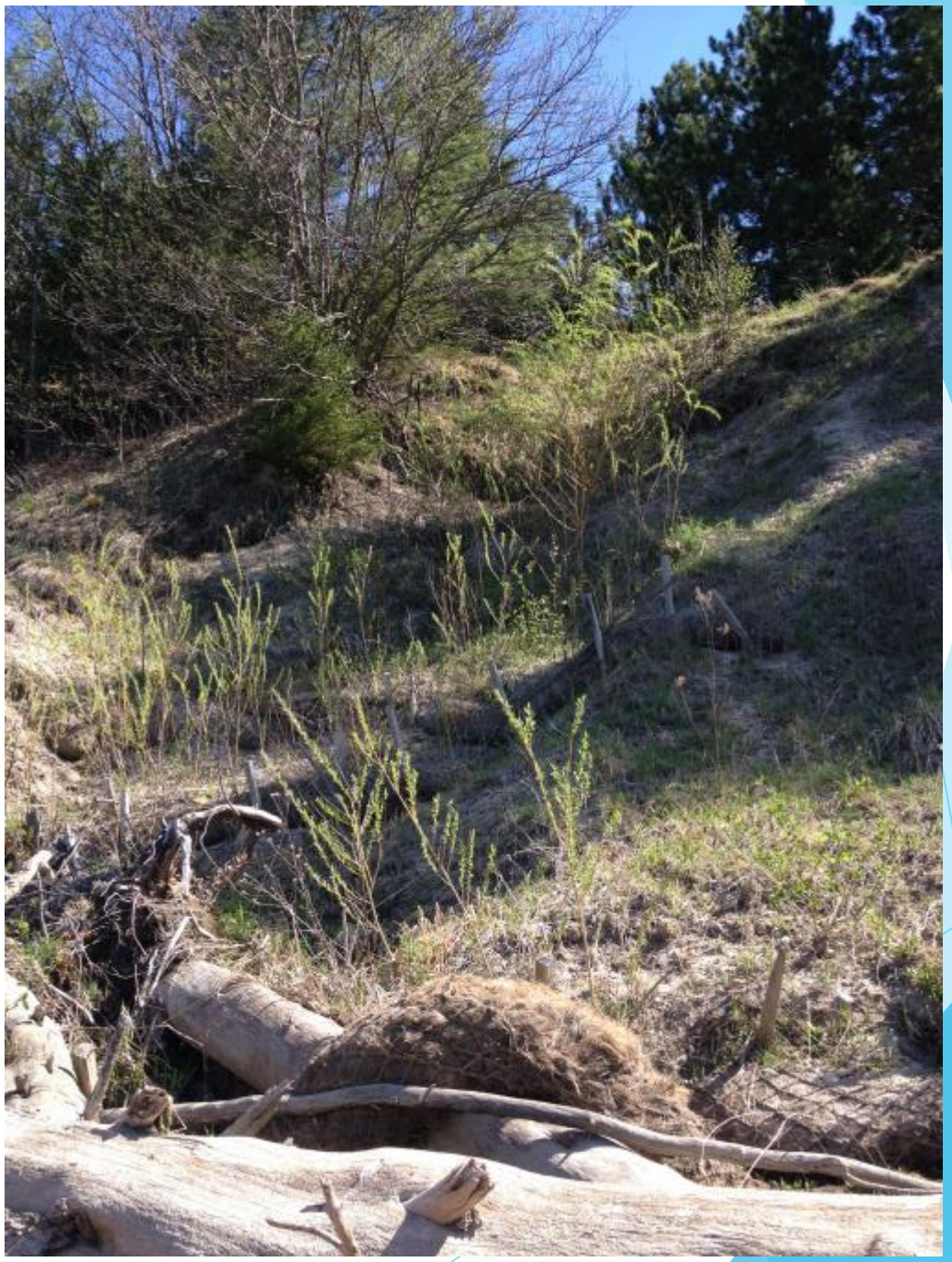
- Planted native plants and shrubs on banks
- Tree revetment at toe of slope

Example: Black River

- Planted native flowers and shrubs in mulch fabric
- Blocked access to river to stop erosion
- Rare species habitat protected: Lake sturgeon and wood turtle

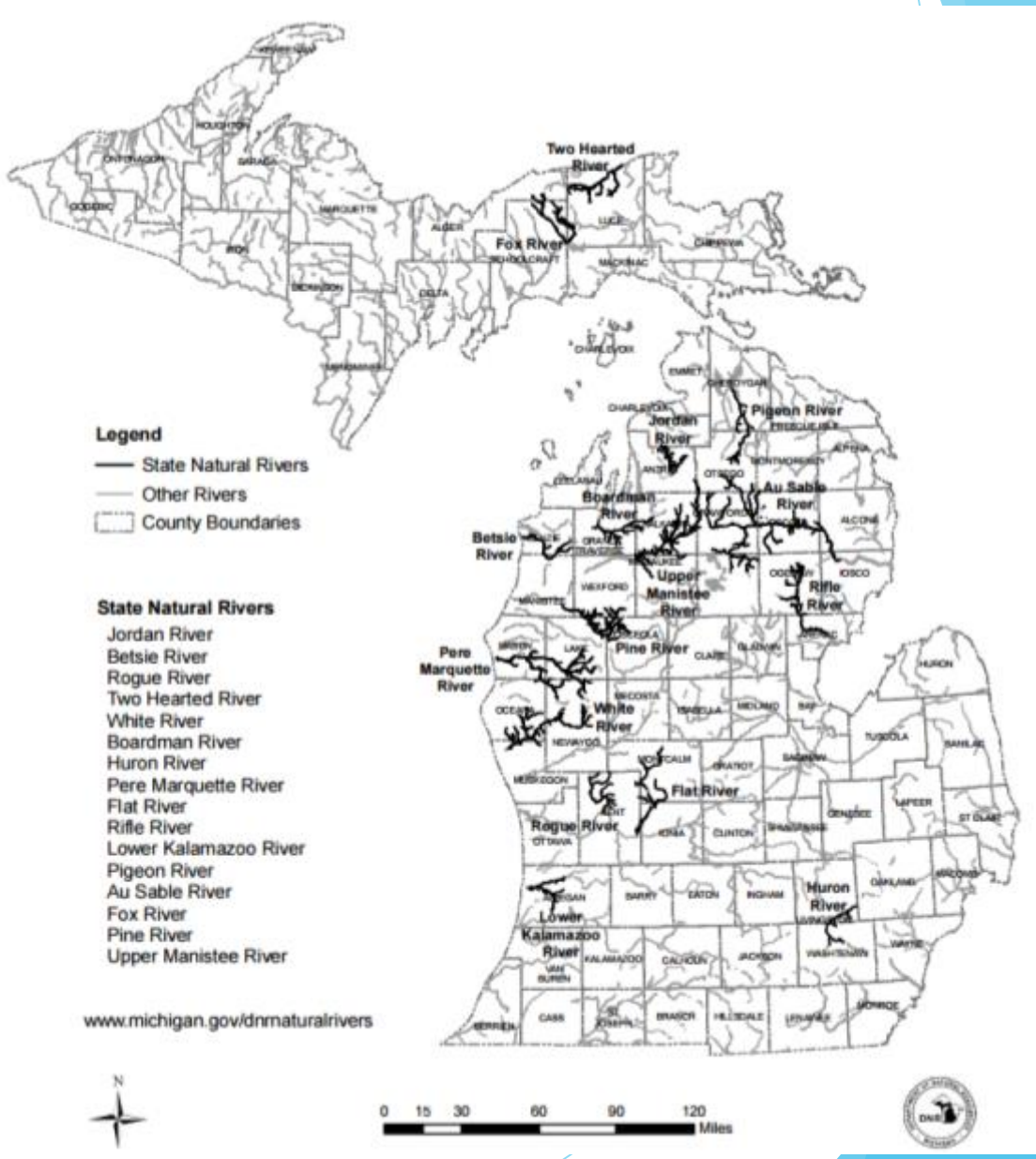
Example: Claybanks

- Used live stakes and fascines (bundles of live sticks)
- Tree revetment and biologs to hold back soil
- Near 100% survival of stakes!



Regulations

- Natural Rivers
  - Determines width of natural buffer strip on designated streams
  - Permit required, often reviewed locally
  - Consult zoning ordinance before doing work
- DEQ permits
  - Necessary when disturbing soil/vegetation in the water or at water's edge
- County/Twp. permits
  - May be required for soil disturbance and tree work on shorelines



Challenges

- Forest pests
- Climate change
- Invasive species

Conclusion

- Partnerships are important
  - Michigan Natural Shoreline Partnership
  - Watershed councils and recreation groups
  - Cooperative Invasive Species Management Areas
  - Northwoods Institute for Applied Climate Science (USFS)
- Huron Pines role:
  - Education and connections to funders/contractors/experts
  - Restoration project management
  - Work with outside-the-box landowners and situations

Questions?

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