

Fish passage barrier inventory, assessment and prioritization



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Inventory, assessment and prioritization



- How many crossings are out there?
- How many are bad?
- Where do we begin fixing problem sites?



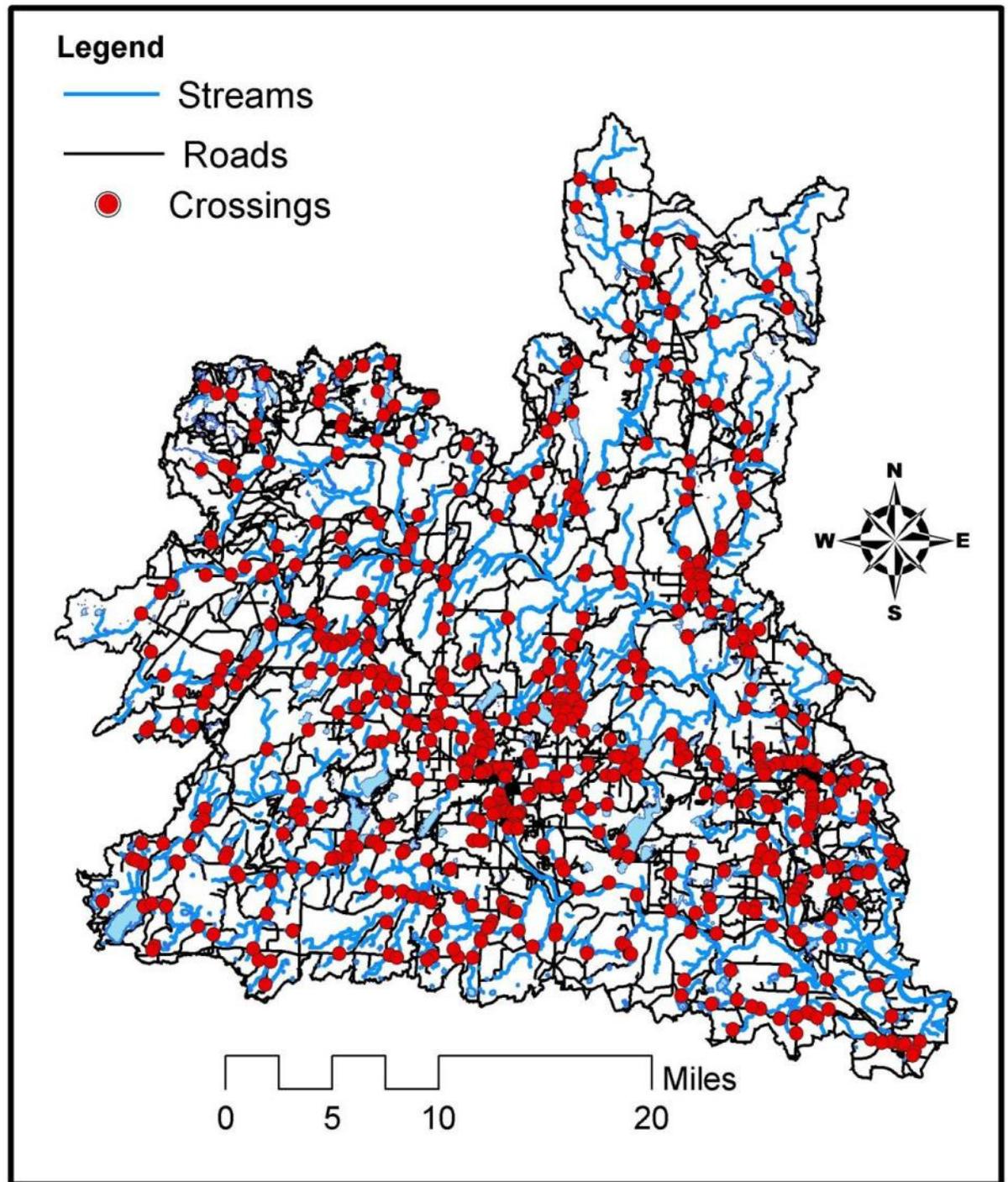
How many road/stream crossings are out there?

(Velocity barrier)



Upper Menominee Watershed

649
Crossings!

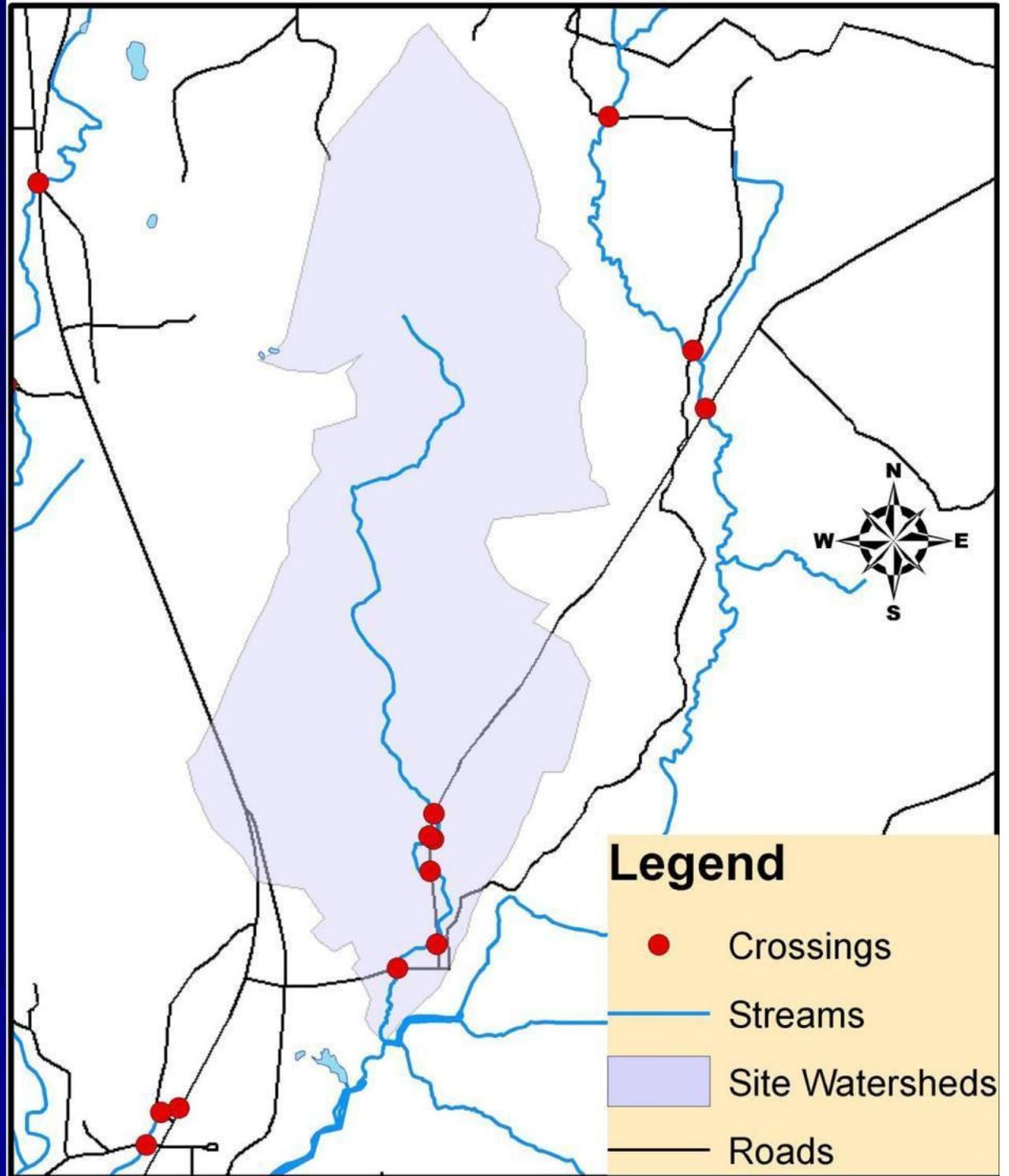


A few cautions

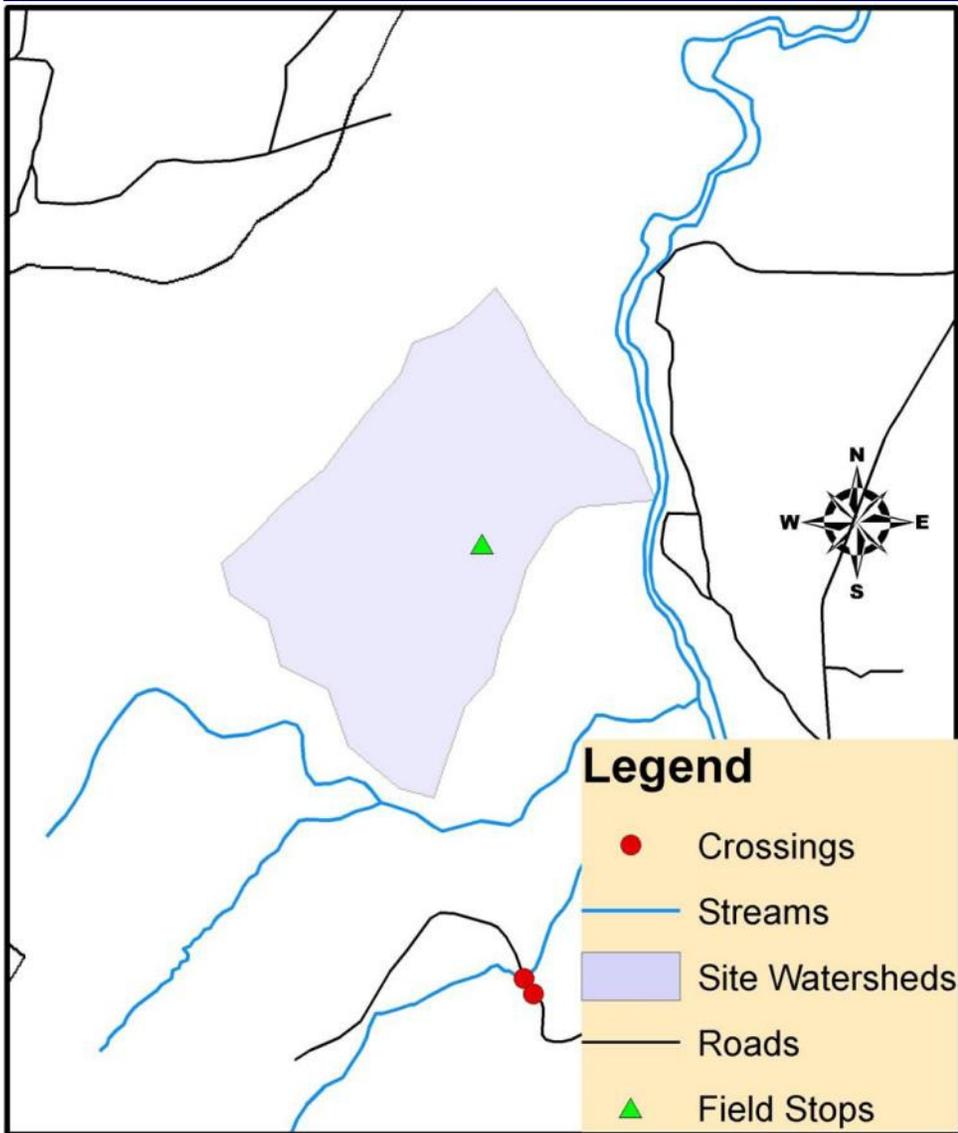
- Scale matters
- Some streams are not streams
- Some roads are not roads
- Some crossings are not crossings
- Some crossings don't show up

Zoom in to
field sites

Looks good!

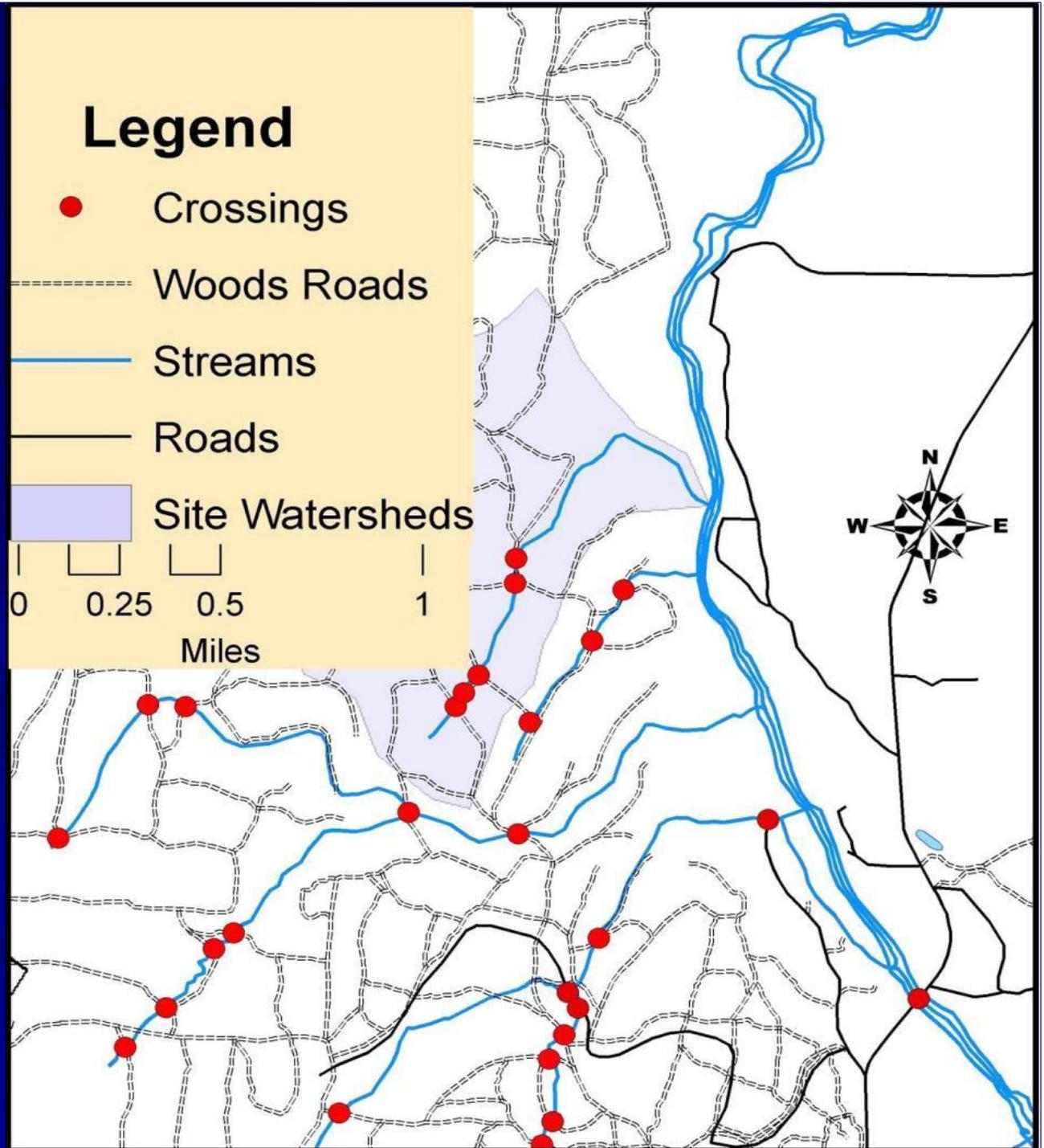


What crossing?

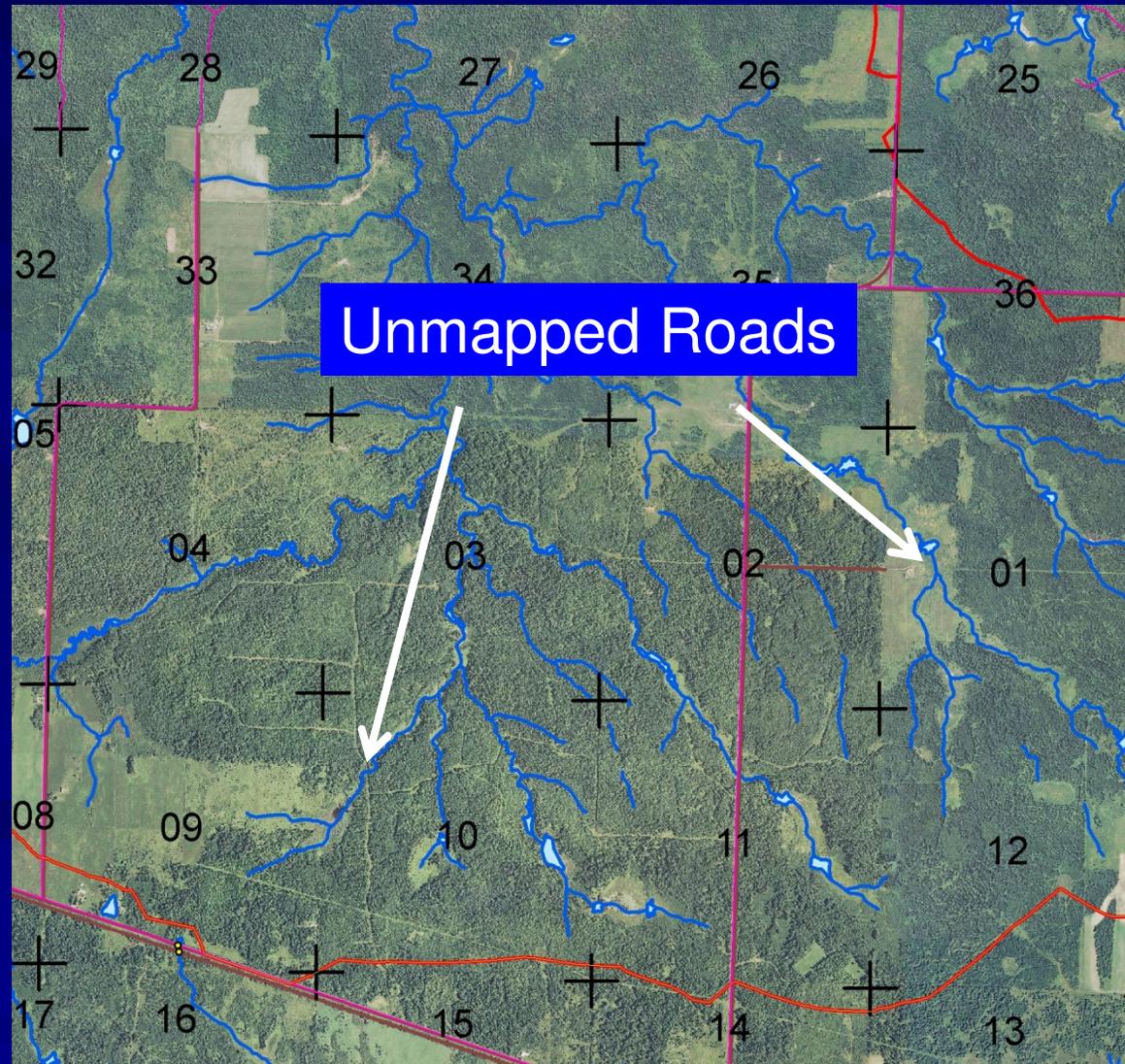


27
Crossings
in 4
Square
Miles

Scale Matters –
Use the finest
scale possible



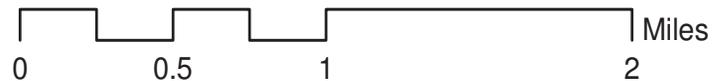
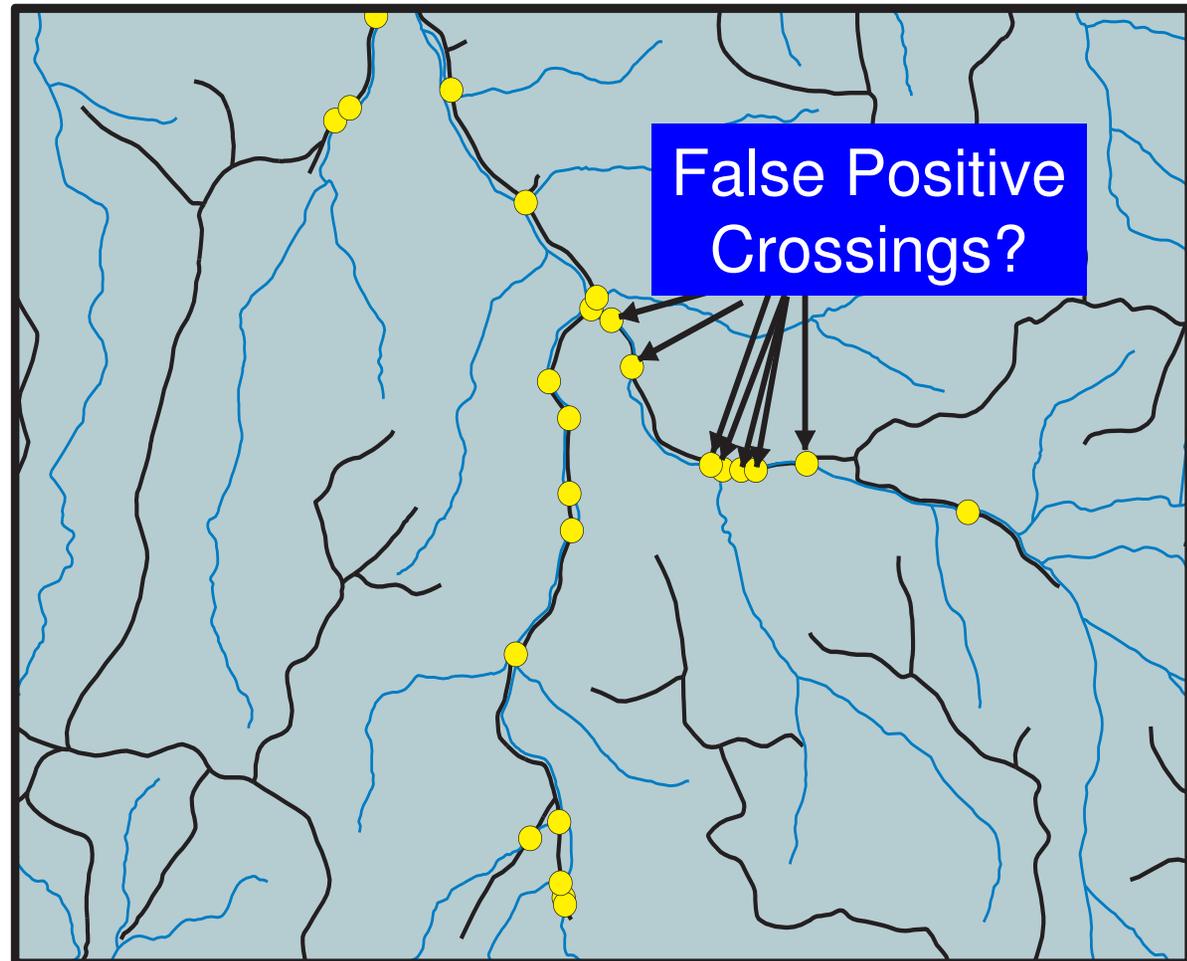
There may be more roads than are mapped



Some crossings may not be crossings

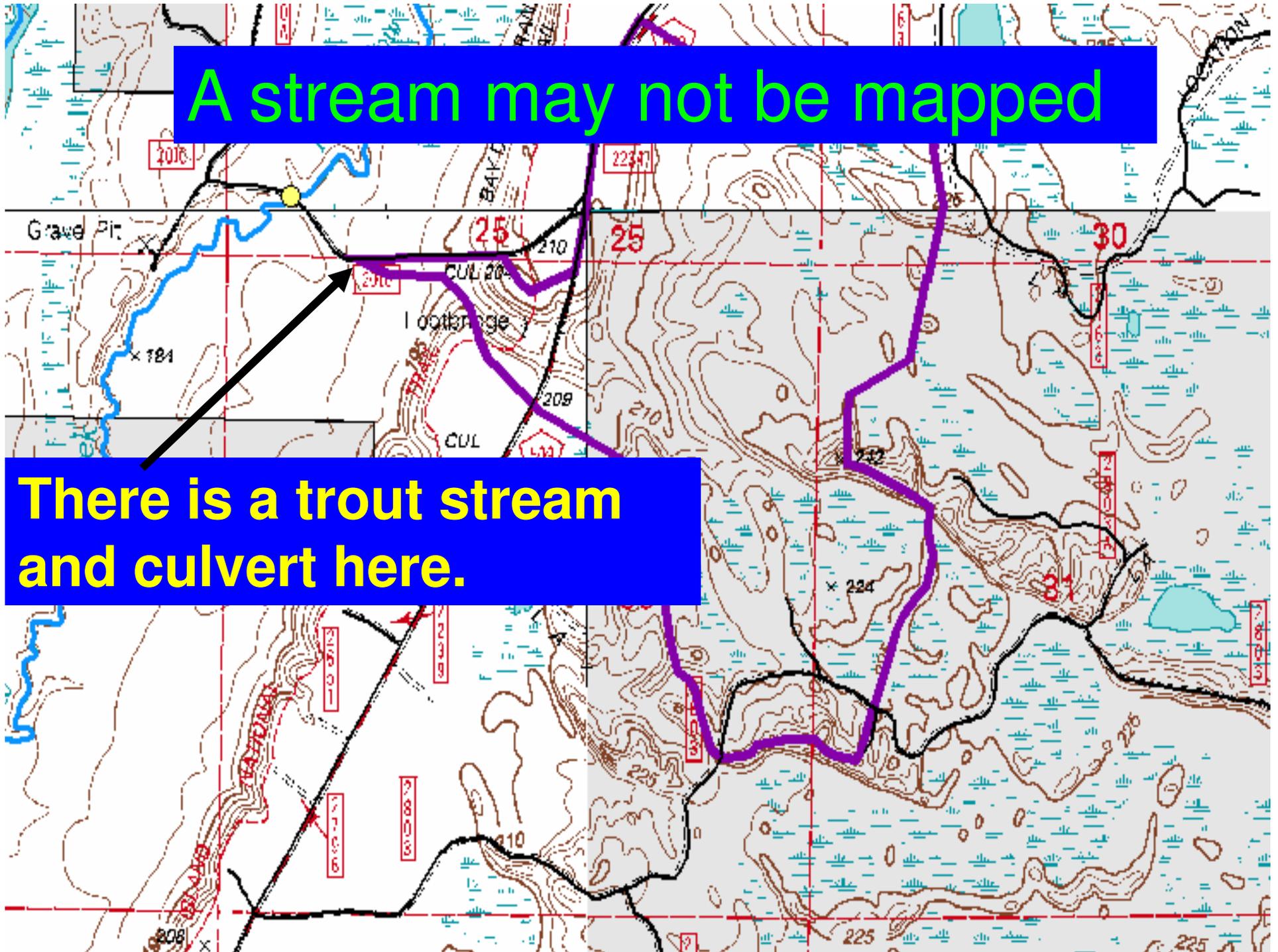
Legend

-  National Forest
-  Watersheds
-  Watershed 7140102040
-  Clip FS Roads
-  Clip FS Streams
-  FS_crossings



A stream may not be mapped

There is a trout stream and culvert here.



Inventory and assessment

■ Goals:

- What kinds of problems are out there?
- How bad are they?



Two tier approach to inventory

- Tier 1– Rapid assessment (volunteers)
- Tier 2 – More in-depth (more equipment and skills required)



Field equipment

- Traffic cones & safety vest
- Clipboard & pencils
- Camera
- Maps
- Clinometer/hand level
- GPS
- 100' tape
- Waders
- Survey rod or tape measure
- Flashlight
- Flow velocity meter/float and stopwatch



Communication plan, first aid kit, sunscreen, insect repellent, water, knowledge of safety hazards.

Datasheet and instructions available

Stream Crossing Data Sheet

Site ID: _____

General Information

Stream Name: _____ Road Name: _____

Name of Observer(s): _____ Date: _____

GPS Waypoint: _____ GPS Lat/Long: _____

County: _____ Township: _____ Range: _____ Sec: _____

Adjacent Landowner Information: _____ Additional Comments: _____

Database

Site _ □ ×

Stream Crossing Data Sheet SiteID

Stream name Road name

Name of Observer(s) Date

Latitude Longitude

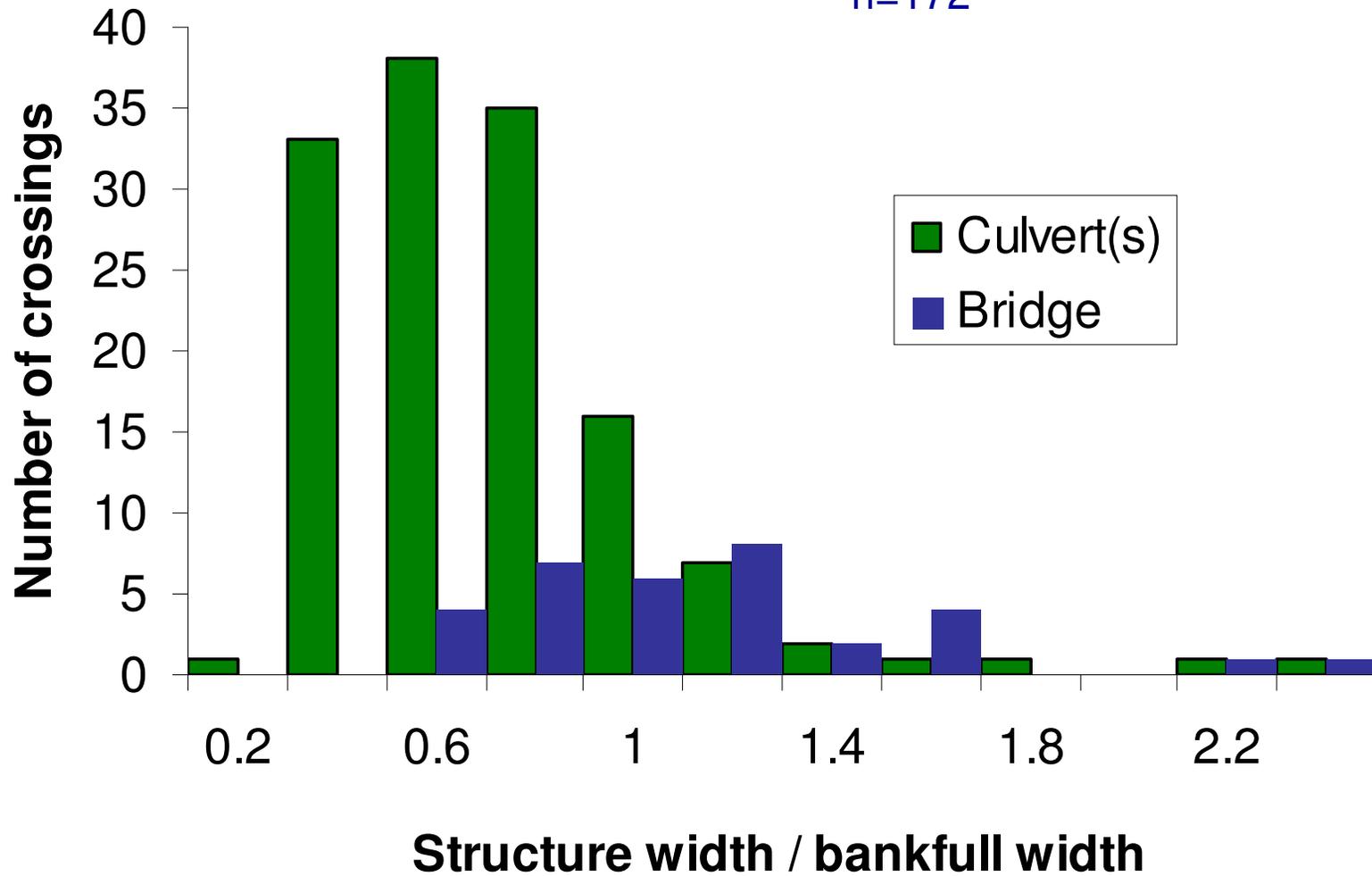
Location comments

Quick assessment metrics

- Constriction ratio
 - Structure width/bankfull width
- Outlet drop
- Outlet pool/bankfull ratio
- Culvert depth/stream depth
- Substrate?

Constriction Ratio

n=172



0

Estimating passability

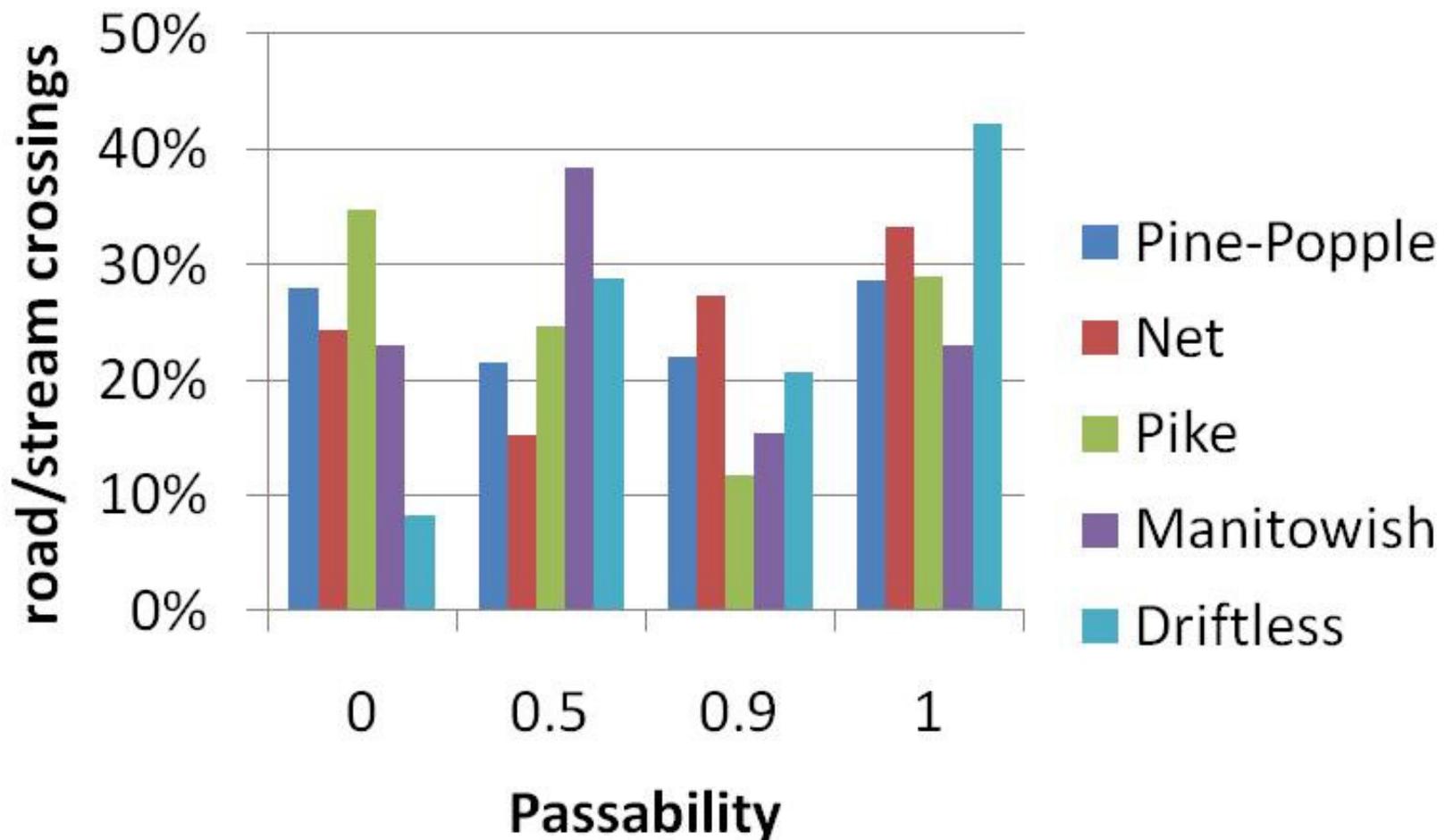
0.5



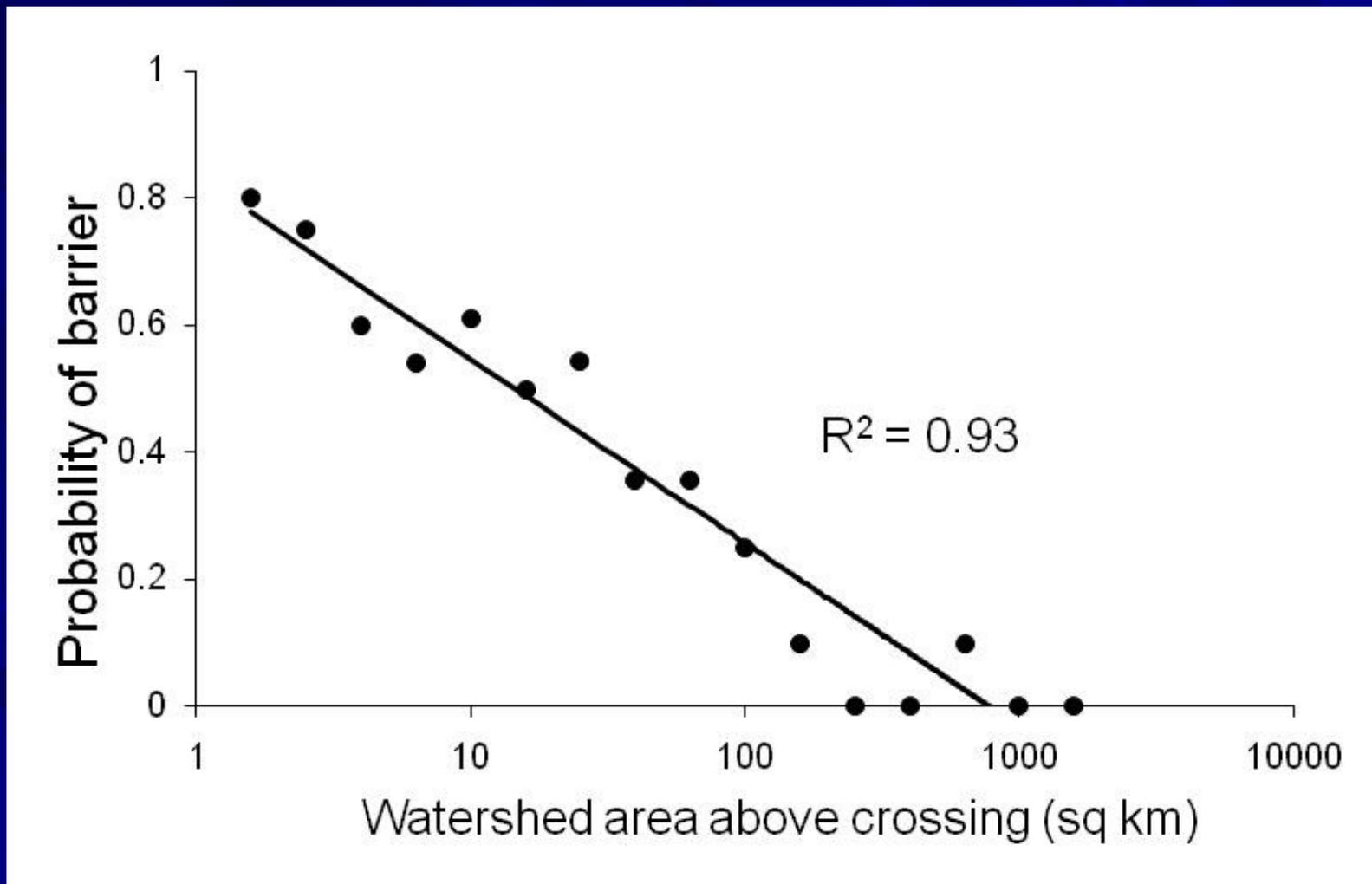
0.9

1

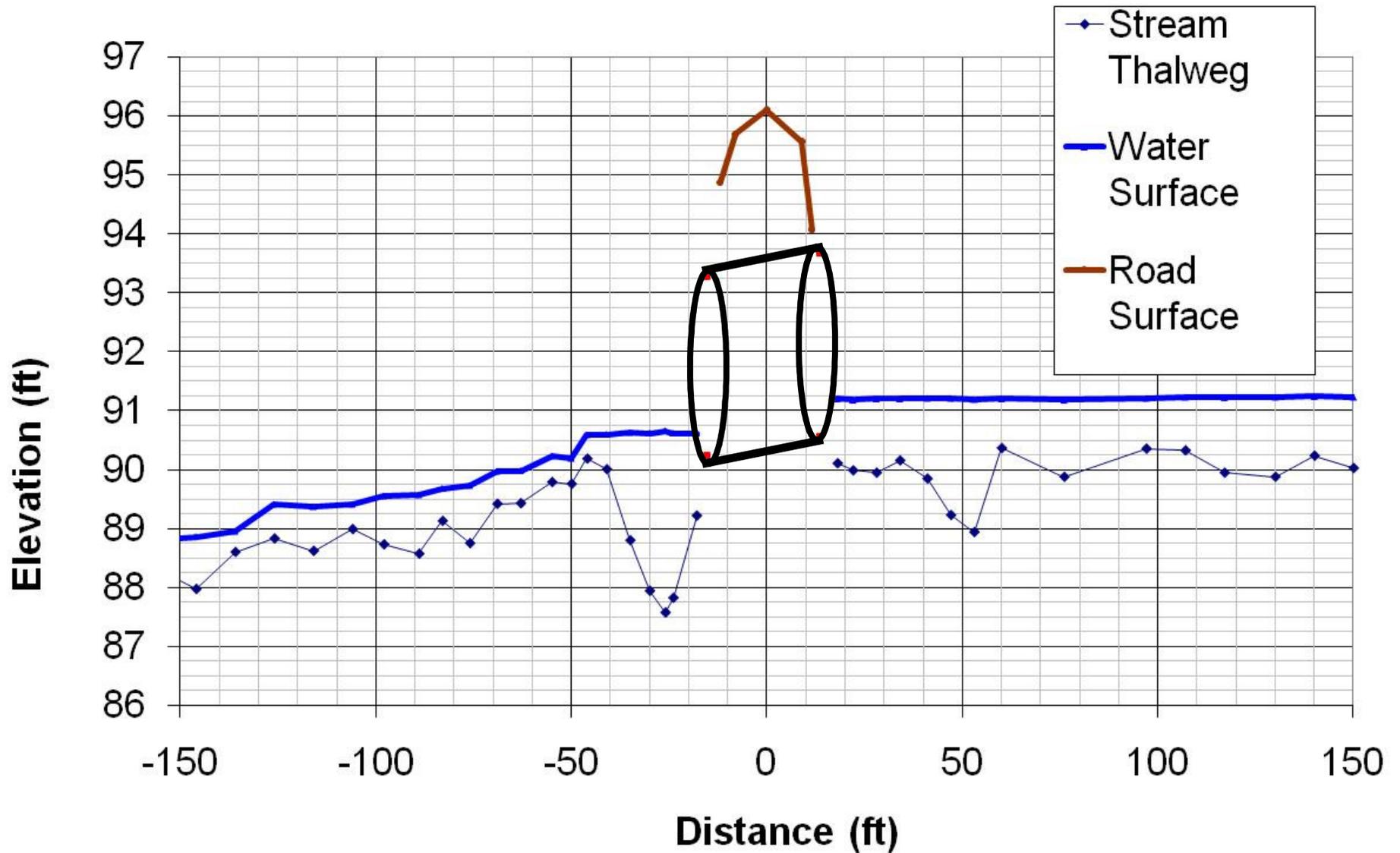
Most crossings are at least partial barriers



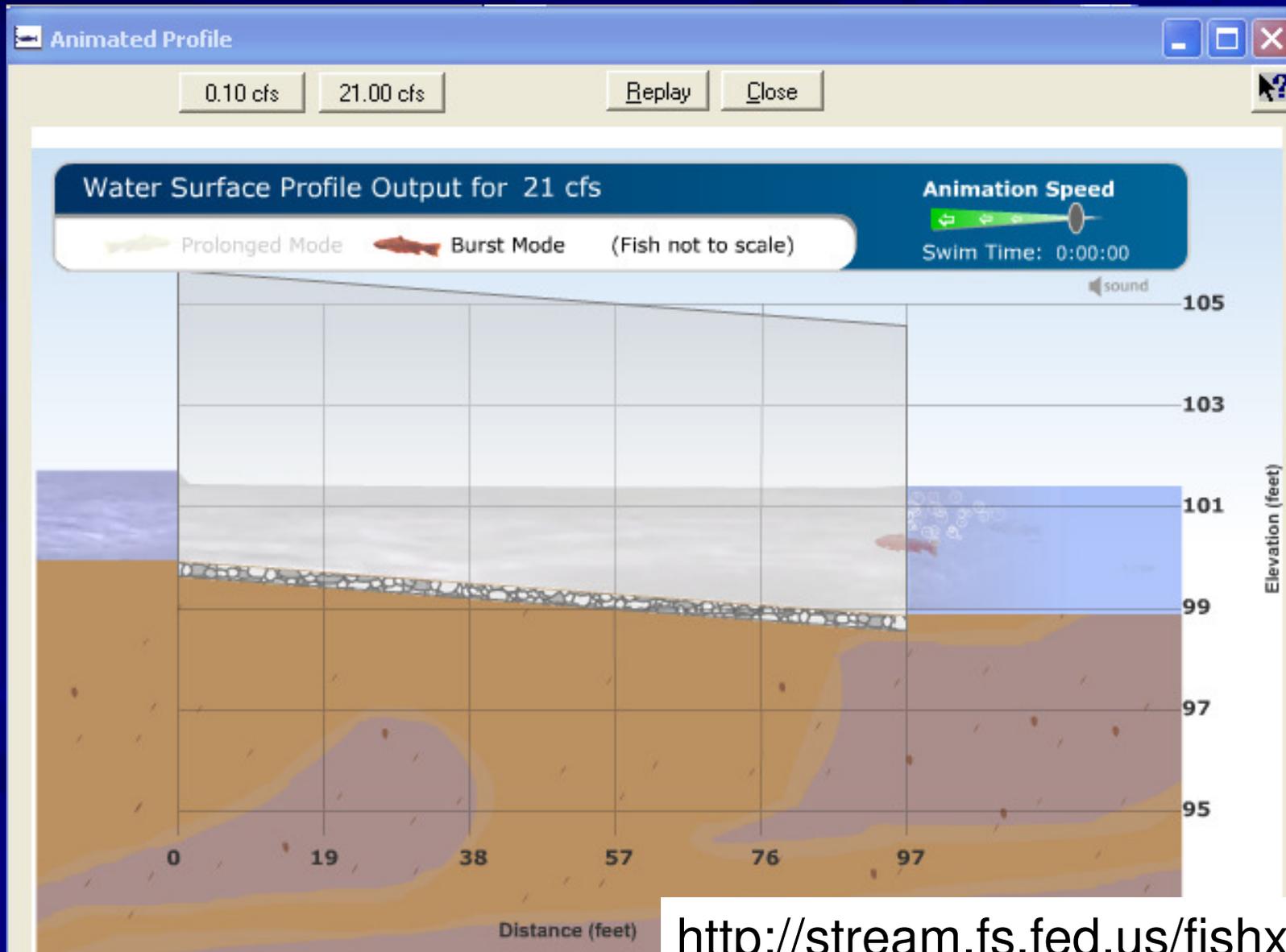
“Barriarity” vs. watershed area



Tier 2 assessment



FishXing



<http://stream.fs.fed.us/fishxing/>

Pike River Barriers



Legend

Passability

◆ <all other values>

PASS

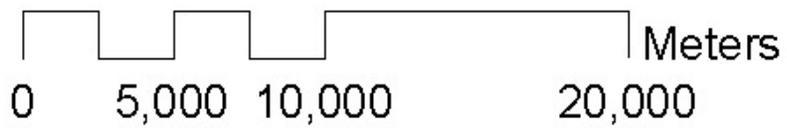
● 0

● 0.1

● 0.5

▲ 0.9

● 1



7/9/10

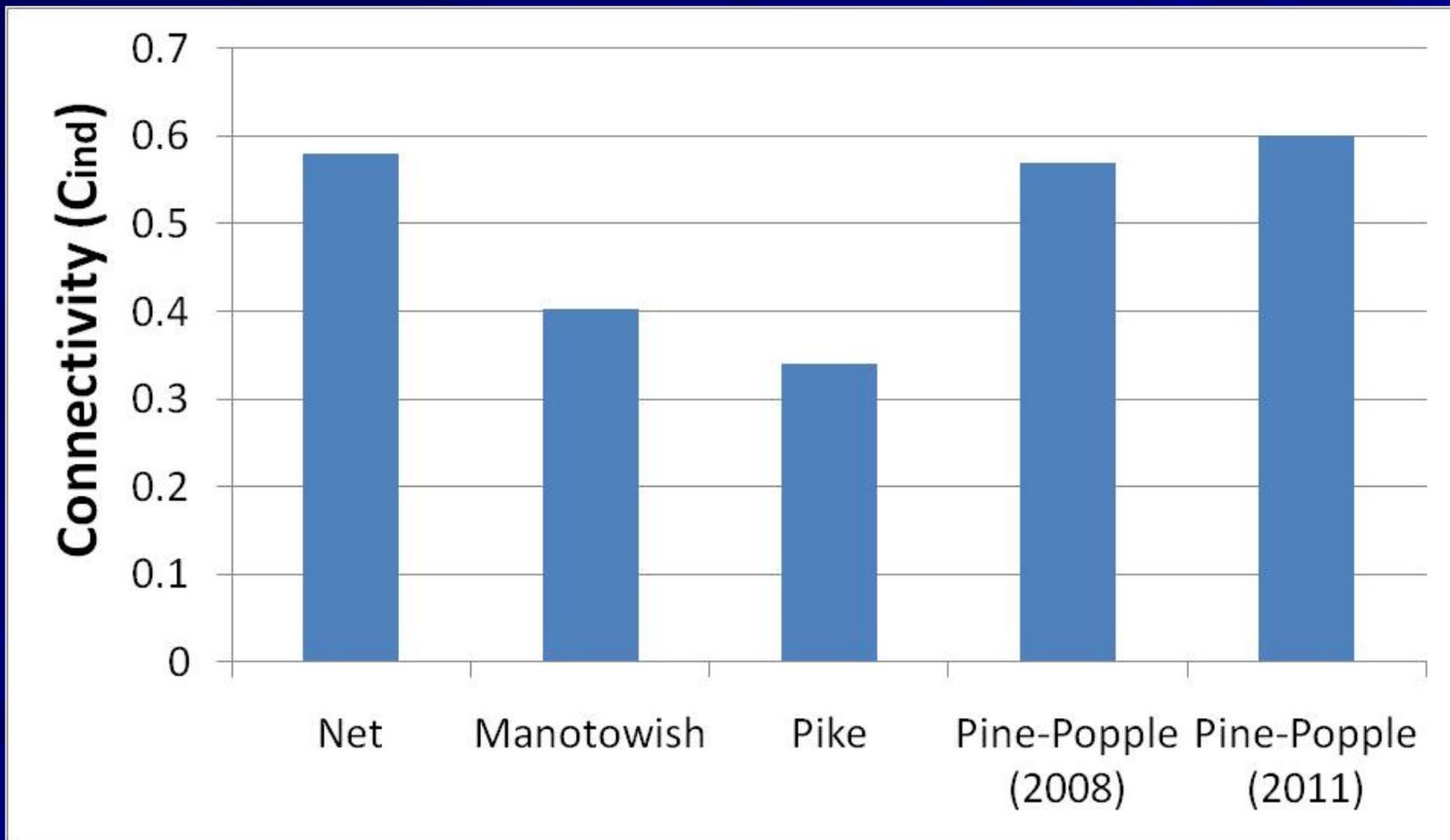
Priorities, priorities

- Structure condition
- Risk/consequences of failure
- Water quality
- Cost (\$\$)
- Opportunity

- Ecology
 - Rare species
 - Invasive species
 - Game fish
 - Turtles/amphibians
 - Amount of habitat
 - Quality of habitat
 - Diversity of habitat

<http://conserveonline.org/workspaces/streamconnect>

Comparing connectivity of watersheds



Next steps



<http://www.roadsoft.org/>



Questions?

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