

# ROAD/STREAM CROSSINGS WORKSHOP OVERVIEW

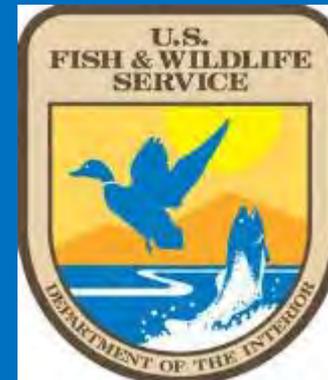
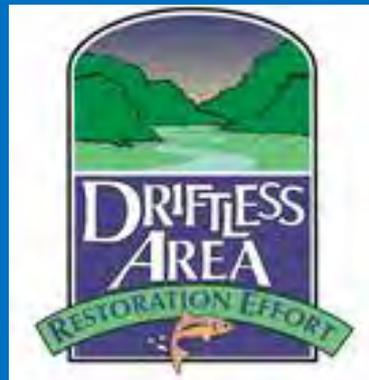
APRIL 12-14, 2016



The Nature Conservancy

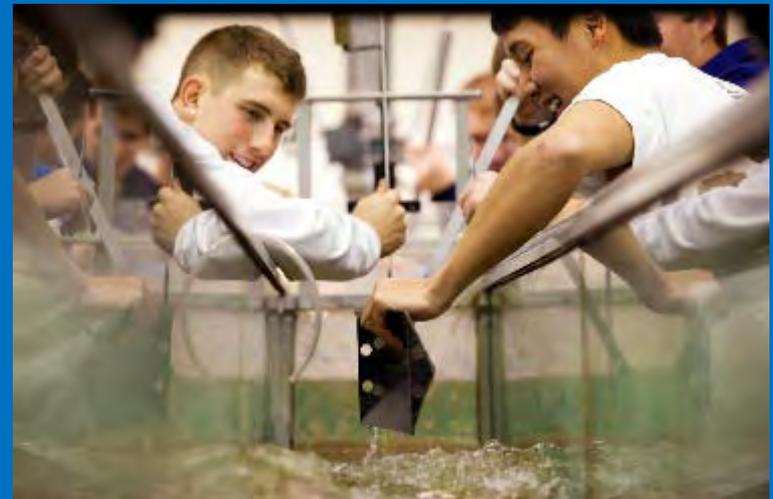


Protecting nature. Preserving life.™



# WELCOME!

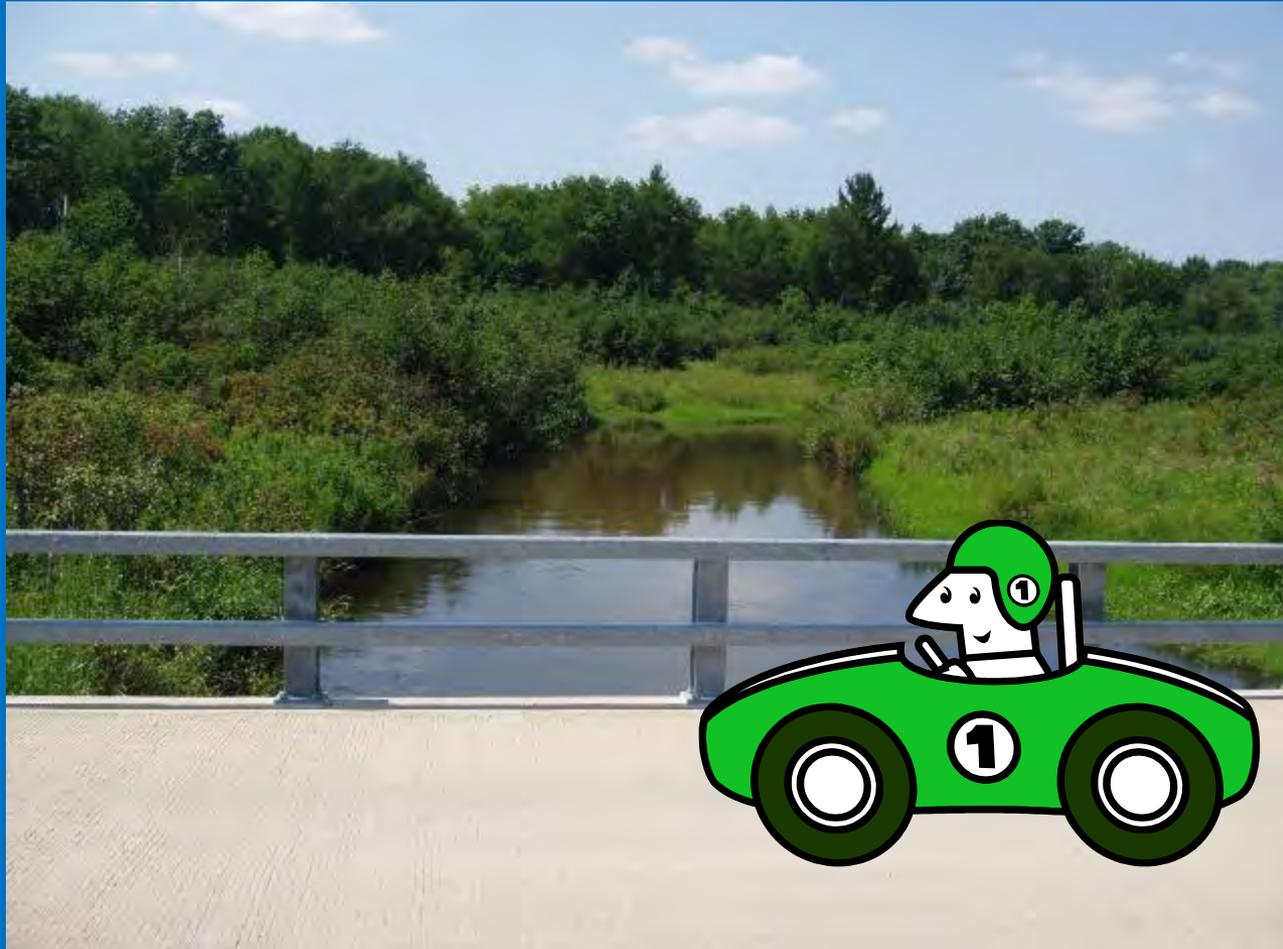
- A little about this place:
  - Founded in 1866, encompasses approximately 821 acres, and undergraduate enrollment of 8000+ students in 41 majors
  - First state teacher preparation institution in Wisconsin – Platteville Normal School
  - The College of Engineering, Mathematics, and Science has about 3000 undergraduates enrolled in seven different engineering disciplines, with Civil and Environmental Engineering having enrollment of around 650 undergraduates



# WELCOME!



# Roadway View of Road-Stream Crossing



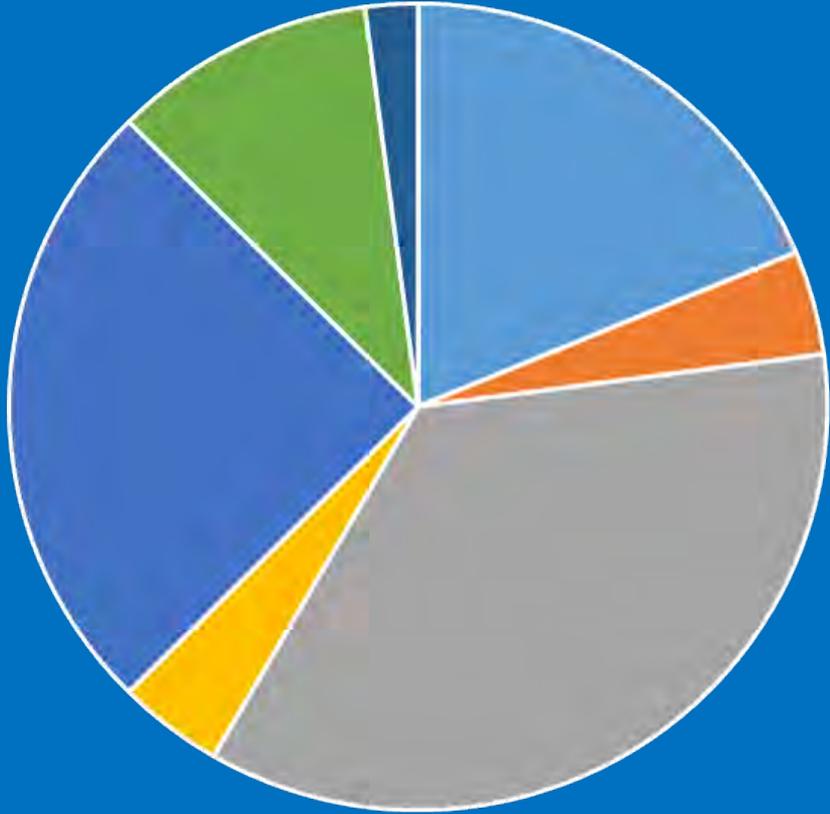
# WATERWAY VIEW OF STREAM XINGS



# WHO ARE "WE"?

Our Breakdown!

- WIDOT
- TU
- County (Highway and Other)
- Municipality
- Private/Consulting
- Federal/USFS
- Academic



# TODAY

- **Welcome to the Driftless**

(Jeff Hastings - TU)

- **How Streams Work**

(Matt Diebel – WI DNR)

- **Biological Consequences of Habitat Fragmentation**

(Mike Miller – WI DNR)

- **Fisheries of the Driftless Region**

(Brad Sims – WI DNR)

- **How Roads Affect Streams**

(Dale Higgins - USFS)

- **Long Term Cost Benefits of Stream Friendly Crossings**

(Jon Simonsen WI DNR)

- **Inventory, Assessment and Prioritization**

(Mark Fedora - USFS and Matt Diebel – WI DNR)



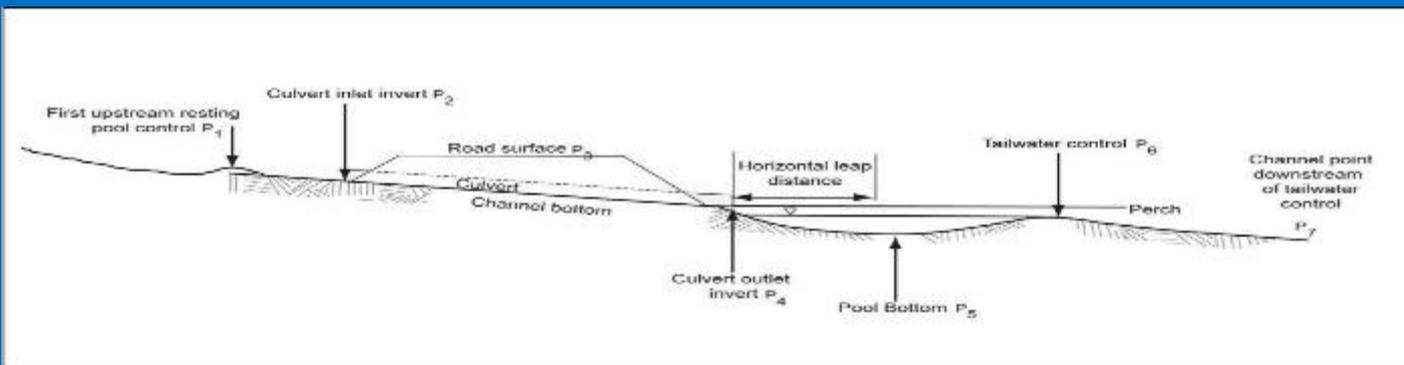
# TODAY

- Lunch
- Field trip:
  - CTH O over tributary to the Little Platte River
    - Explore multiple, close, road stream crossings on high gradient stream
  - Rock Road over Snowden Branch
    - Site Assessment, Erosion Control, Reference Reach, and Biological Assessment



# WEDNESDAY

- Permitting – Maureen Millmann (WI DNR)
- Best Management Practices – Bobbi Jo Fischer (WI DNR)
- Design – Dale Higgins and Mark Fedora (USFS)
  - Culvert Hydraulics and design methods
  - Hydrology, Site Assessment, Stream Alignment and Profile



# WEDNESDAY



Road/Stream Site Assessment Checklist	
Action	Notes
<b>Stream Characteristics</b>	
Reference reach	
• Cross-sections	
• Bankfull width	
• Substrate	
• Slope/ gradient	

- Main Street over Rountree Tributary
  - Identify reference reach, pebble count, bankfull dimensioning
  - Survey Channel Profile
  - Design Checklist
- Restored Road-Stream Crossings – The ‘Good’ Examples

# THURSDAY

- Road-Stream Crossing Construction - John Voorhees (AECOM) and Ryan Arnold (WisDOT)
- Stream Crossing Design II - Dale Higgins & Mark Fedora (USFS)
  - Bed and banks
  - Structure type and size
  - Sediment mobility and stability
- Sources of Funding and Grant application strategies - Jon Simonsen (WI DNR)
- Putting it all Together - Jon Simonsen, Dale Higgins, & Bobbi Jo Fischer
- Introduction to Computer Aids and Analysis Regarding Aquatic Connectivity
  - Surface Water Data Viewer
  - FishXing modeling
  - HEC-RAS modeling
  - ArcView Watershed Prioritization Toolbox

# KEY TAKE HOME POINTS

- Understand why correct structure installation is important from both the road and stream view.
  - Habitat connectivity
  - Road maintenance
- Planning:
  - Culvert assessments
  - Interdisciplinary coordination

# KEY TAKE HOME POINTS

- Design
  - Correct size & elevation
  - High gradient streams (>1-2%) need to slow down water velocities.
- Understand construction fundamentals.
  - Safety, survey techniques, compaction
  - Erosion control

# QUESTIONS?

What did the fish say when it reached the perched culvert???

