Stream Connectivity Pilot Project

GIS Assessment of Stream Crossings
for Inventory and Upgrade Prioritization

Josh Royte & Henning Stabins
The Nature Conservancy & Plum Creek

Fisheries Improvement Network Meeting
November 6, 2014

Topics

▶ Background

▶ Project Benefits

   ▶ Landowner

   ▶ TNC

▶ Scope and Process

▶ Where we are now

▶ Next steps

Background

▶ Landowners continually upgrading stream crossings.

▶ Agencies continually improving fish habitat data.

▶ Computer technology continually improving to collect, analyze and store data on crossings & habitat, address cross-ownership issues, data sharing among organizations, etc.

▶ Xing structure technology is continually improving – materials, costs, installation, etc.

▶ Fisheries Improvement Network bringing folks together….

❖ Led to pilot project to test some ideas

Project Benefits

▶ Vision: Share data on crossings and fish & stream habitat to guide improvements to stream connectivity.

▶ Landowner benefits

- ▶ Using fish habitat data, become better informed on where to guide our crossing data collection.

- ▶ As xing data is collected, become better informed on the priorities for xing upgrades, based on fish and stream habitat data.

  - ▶ Guide further on-the-ground assessments with IFW fish biologists & others.

- ▶ Facilitate data sharing to help address upgrade prioritization questions across ownerships.

Objectives

The Nature Conservancy objectives:

Overall: Increase the rate of restoration of high-value habitat

- ▶ Improve data exchange with private landowners across watersheds/networks

- ▶ Improve guidance on decision making for priorities

- ▶ Foster exchange of information to improve efficiency implementation

- ▶ Maintain landowner trust

  - Data security

  - Data management and interpretation

  - Tracking and reporting

Pilot Scope and Process

▶ Scope

   ▶ Several town area around Bingham in central Maine

   ▶ Using existing xing data already collected by Plum Creek

   ▶ ~ 400 crossings

▶ Process

   ▶ Establish a Data Sharing Agreement

   ▶ Transfer crossing data via a shape file

Stream Crossing Structure Field Inventory

Location: **Inspection Date:** **Inspector(s):**

Crossing ID	Crossing Name (optional	Latitude	Longitude	Structure Type Code	Structure Material Code	Year Installed (if	Structure Length (ft)	Structure Width (ft)	Structure Height (ft)	Stream Bankfull Width (ft)	Structure Condition	Fish Passage Rating	Next Inspect (yrs)	Comments

Structure Type Code	Structure Material Code	Fish Passage Rating	Next Inspect
0 Unknown	0 Unknown	0 Fish Presence Doubtful – Forester Opinion	0 Unknown
1 Bridge	1 Wood	2 No Fish Present – Verified by Scientist	1 Good
2 Round Culvert	2 Metal	3 Fish Present – No Barrier	2 Fair
3 Bottomless arch	3 Concrete	4 Fish Present – Outlet drop barrier	3 Poor
4 Ford	4 Plastic	5 Fish Present – Barrier due to structure slope/wa	4 Corrective Action Required
5 Arch/Squash Culvert	5 Bridge: Wood abutment/Steel I-Beam	6 Fish Present – Barrier due to debris	5 New/Excellent
6 Box Culvert	6 Bridge: Wood abutment/Log Stringer	7 Fish Present – Barrier Unspecified	6 Washed Out/Failed
7 Low Water Bridge	7 Bridge: Wood abutment/Wood Beam Stringer	8 In Review	
8 Ditch Relief Pipe	8 Bridge: Concrete abutment/Steel I-Beam	9 Fish Unknown – No Barrier	
9 Structure Removed	9 Bridge: Concrete abutment/Wood Beam Strin	10 Fish Unknown – Barrier	
	10 Bridge: Concrete abutment/Concrete Stringer		
	11 Bridge: Railcar		
	12 Metal: Old Tanker		

Where we are now

▶ Analysis issues

- Stream and crossing mismatches to fish & stream habitat data.

- Pilot area expansion would help by including more complete watersheds for analysis.

▶ Next steps

- Use a gap analysis to identify additional crossing data to improve the overall analysis.

- Collect and add more crossing data to the analysis in 2015.