



RI Resource Conservation & Development Area Council

RI River & Stream Continuity Project

Road Crossings as Potential Barriers to Fish and Wildlife Movement

- > Stream crossings as barriers to fish and wildlife movement
- > Road & stream crossings causing habitat fragmentation
- > Volunteer assessment of stream crossing structures
- > Focus on native Brook Trout habitat restoration
- > Working with Partners to expand Project in other RI watersheds

Background

Long linear ecosystems, rivers and streams are vulnerable to fragmentation. Human activities can disrupt river and stream habitats. The most familiar human-caused barriers in stream systems are **dams**.



A sub-standard culvert

In 2006, a partnership began in RI using information, assessment approaches and standards already developed through a similar project in Massachusetts. With assistance from Trout Unlimited (TU), and the Wood-Pawcatuck Watershed Association (WPWA), the USDA-NRCS and the RI Resource Conservation and Development Council (RIRC&D) are coordinating an effort to create river and stream crossing standards and continuing a **volunteer inventory program** for culverts and other crossing structures. The objective is to more effectively identify and address barriers to fish movement and river and stream continuity.

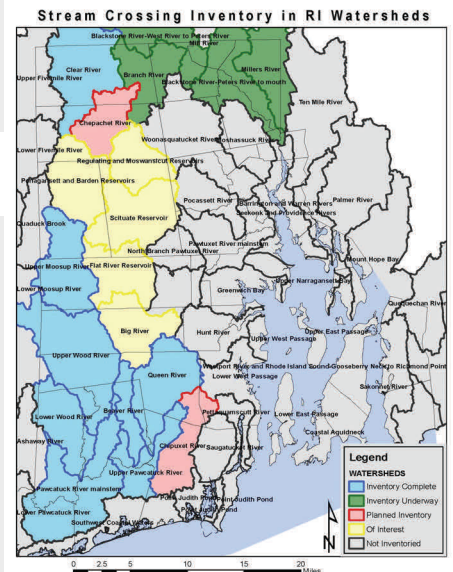
With approximately 500 dams in Rhode Island this is a considerable issue, however, there is growing concern about the role of road crossings – and especially culverts – in altering habitats and disrupting habitat continuity. Based on a GIS analysis conducted by the USDA Natural Resources Conservation Service (NRCS), it is estimated that there are over 4,300 road and railroad crossings affecting Rhode Island streams.

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Stream Crossing Inventory

Currently, TU and WPWA volunteers have inventoried over 800 stream crossings in the Upper and Lower Wood, Queens, Beaver, Upper Pawcatuck, Clear, and Millers River watersheds, and continue to survey the Branch and Pawcatuck River watersheds. Through this inventory, the greatest barriers to fish and wildlife movement can be identified for their

restoration potential. Information is being compiled about fish and wildlife passage requirements, culvert design standards, and methodologies for evaluating barriers to fish and wildlife passage. This information will be used to develop design standards for culverts and other stream crossing barriers, and where possible, implement restoration projects.



Native Brook Trout are a species of concern in RI.



Impacts of River and Stream Crossings:

- **Habitat loss & degradation**
- **Alteration of ecological processes**
- **Road kill leading to loss of populations**
- **Population fragmentation & isolation**
- **Reduced access to vital habitats**
- **Disruption of processes that maintain regional populations**

Restoring Habitat: Focus on Native Brook Trout

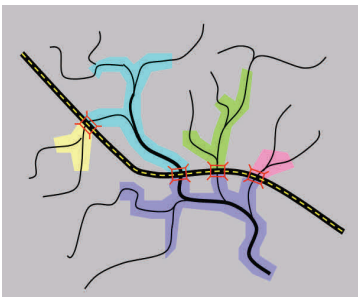
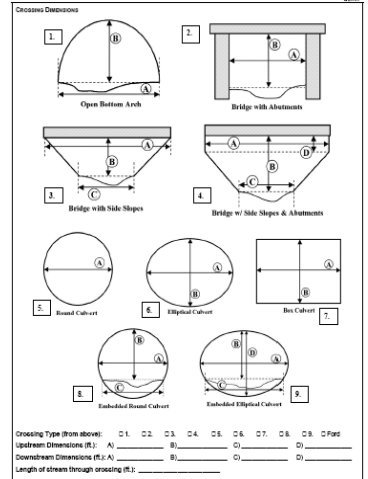
There is great potential for re-connecting many miles of river and stream systems in RI, benefitting migratory fish species (salmon, river herring, shad) and also resident freshwater fish and wildlife populations (trout and freshwater mussels, crayfish).

We hope to expand with more partners to continue assessment of streams in watersheds throughout RI. NRCS has provided training to Trout Unlimited volunteers who are an integral and essential part of surveying stream crossings.

Data collection forms developed by the Massachusetts Riverways Program have served as a template for the Rhode Island Stream Continuity project. Information collected consists of GPS coordinates, road/railway characteristics including vital information on traffic volume, stream characteristics, and structure measurements including data on the type and condition of the crossing.

Data from these crossings are entered into the MA Road Stream Crossing online

database provided to RI by the UMass Department of Natural Resources Conservation. Find more information at: www.streamcontinuity.org



Road networks and river systems are both long, linear features of the landscape. Connectivity is key to the continued functioning of both systems.

Ultimately, our goal should be to create a transportation infrastructure that does not fragment or undermine the essential ecological infrastructure of the land and its waterways.



TU volunteers in the Wood River watershed.

Project Partners

- USDA-NRCS
- RI RC&D Area Council, Inc.
- Trout Unlimited-Narragansett & Northern RI Chapters
- Wood Pawcatuck Watershed Association
- UMass-Department of Natural Resources Conservation



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