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DEPARTMENT OF CONSERVATION
AND NATURAL RESOURCES

Aquatic Management Plans for PA State Forest Lands

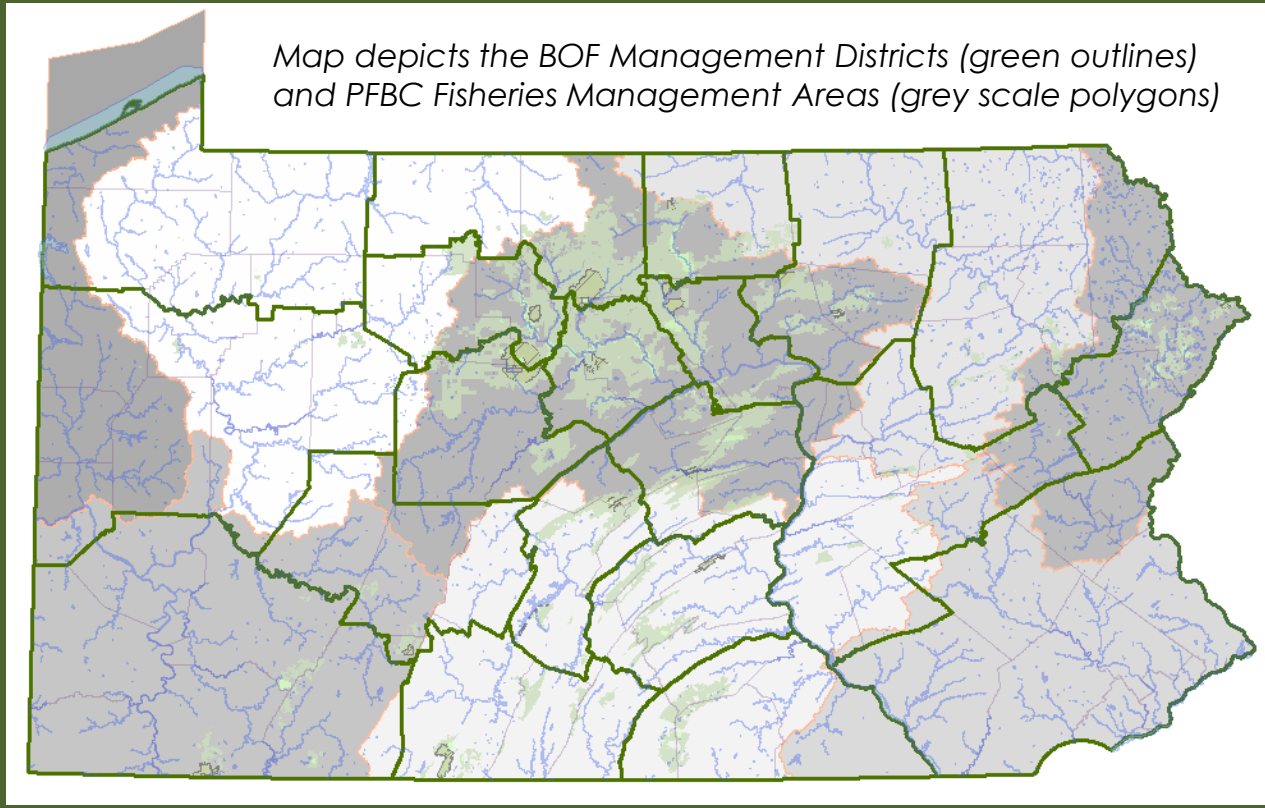
Presented by Robin Eng, Wildlife Ecologist

DCNR Bureau of Forestry, Ecological Services Section

Contact: reng@pa.gov

Introduction: DCNR Bureau of Forestry

- Bureau of Forestry (BOF) is one of four DCNR bureaus
- Manage PA State Forest System
  - **~2.2 million** acres
  - **~5000 miles** of streams
  - Watershed protection was a key objective in the foundation of the State Forest System
- Jurisdiction of PA wild species is divided between three agencies
  - Fish and boat: Fish, Reptiles, Amphibians, Aquatic Invertebrates
  - Game Commission: Birds, Mammals
  - DCNR: Native wild plants (and fostered orphan species fungi and terrestrial invertebrates)

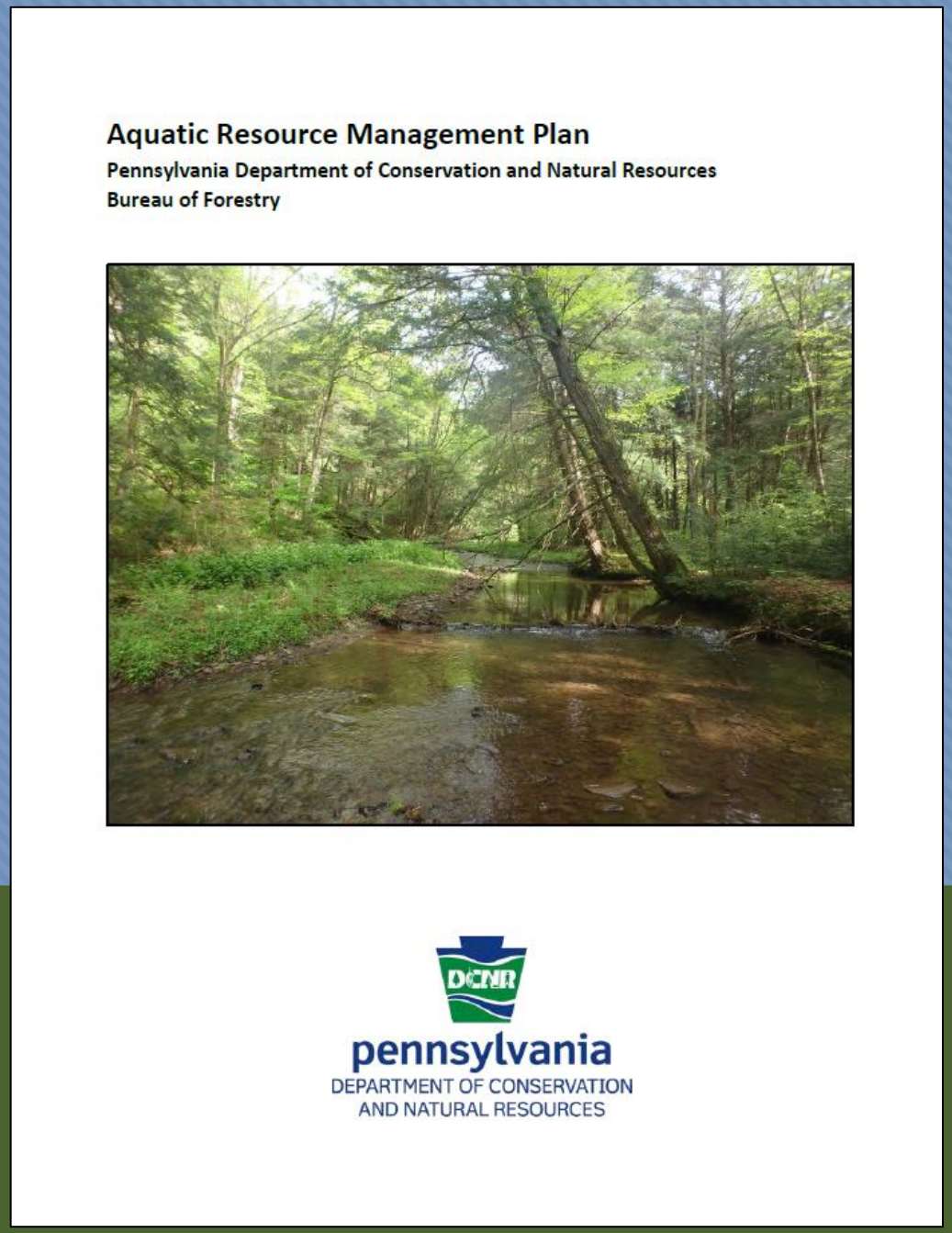


Map depicts the BOF Management Districts (green outlines) and PFBC Fisheries Management Areas (grey scale polygons)

Management Plans & Guidance Documents

- Ecosystem management means no species or system is managed in isolation.
  - Varied perspectives and awareness of interrelated systems and indirect impacts
  - Mirrored by interrelated management plans, guidance documents, and program areas
- Today:
  - **Aquatic Resource Management Plan**
  - **Brook Trout Conservation Plan**

- ❑ Aquatic Habitat Buffer Guidelines
- ❑ Planting and Seeding Guidelines
- ❑ Post-Construction Stormwater BMPS
- ❑ State Forest Resource Management Plan
- ❑ Large Woody Material for Stream Habitat Improvement
- ❑ Stream Corridor Restoration Utilizing Beaver Activity
- ❑ Stream Crossing Culvert Practices for AOP
- ❑ Mitigating Hemlock Loss in Riparian Areas
- ❑ Dirt and Gravel Roads Program
- ❑ Dam removal and repairs Guidelines
- ❑ Oil and Gas Guidelines and Monitoring
- ❑ Silviculture Manual
- ❑ DEP Stormwater BMP Manual
- ❑ Wood Duck Habitat Improvement Guidelines
- ❑ PFBC Lake and Pond Habitat Improvement Guide
- ❑ Pipeline Stream Crossing BMPS



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Aquatic Resource Management Plan

To maintain healthy aquatic resources with suitable habitat, functional buffers, good water quality, connectivity, and naturally occurring fluvial geomorphological processes to ensure overall healthy aquatic communities. (2018)

Contents

- Broad in scope: Streams, Rivers, Wetlands, Ponds, and Lakes
- Identifies key stressors and related resource management practices
- Summaries of additional management resources
- Emphasis on the importance of terrestrial land management to address aquatic ecosystem outcomes at the source

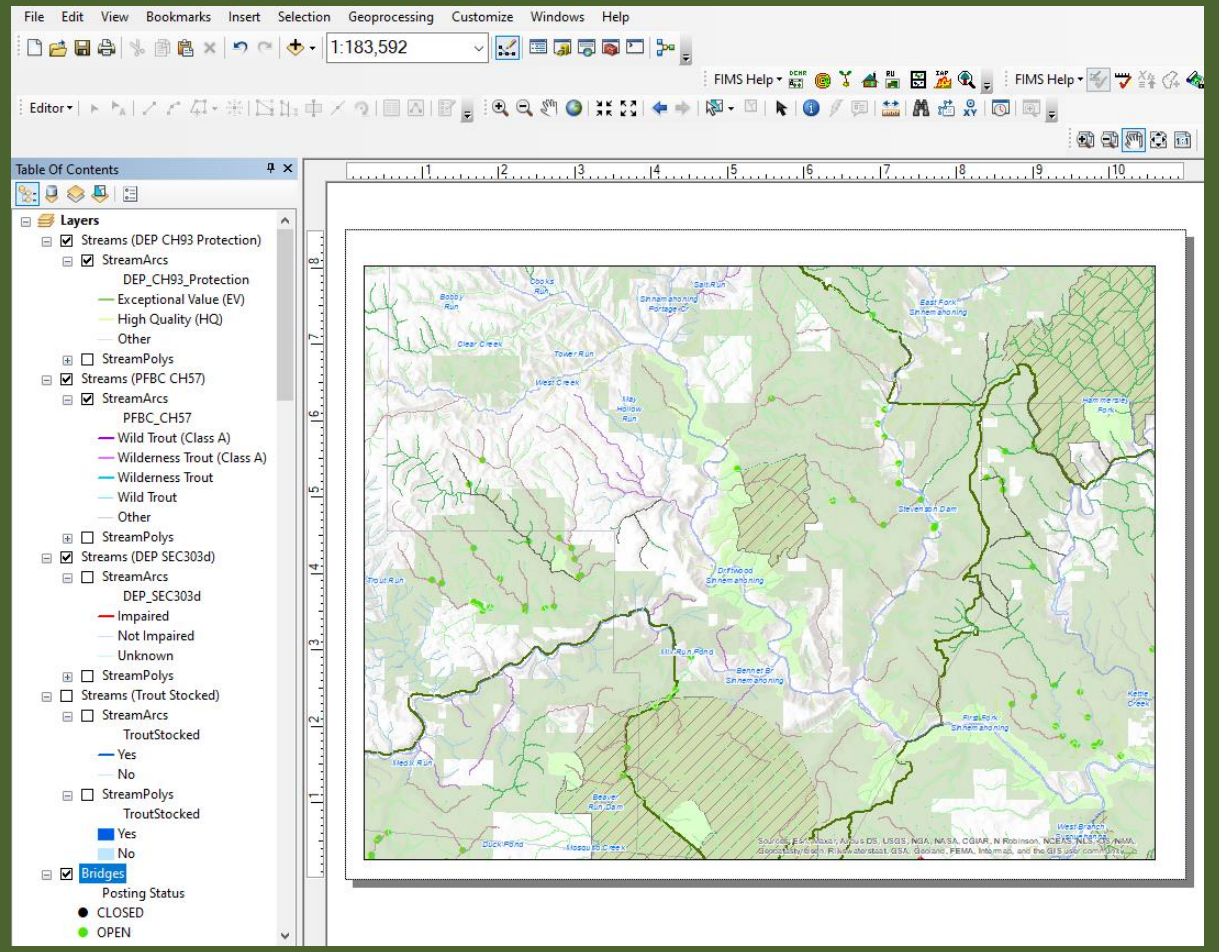
Table of Contents

Objectives for Aquatic Resource Work

- Maintain natural stream processes
- Reduce pollution: Both inorganic/anthropogenic and sedimentation
- Maintain longitudinal connectivity for Aquatic Organism Passage
- Ensure adequate heterogeneity and habitat for Aquatic Organisms

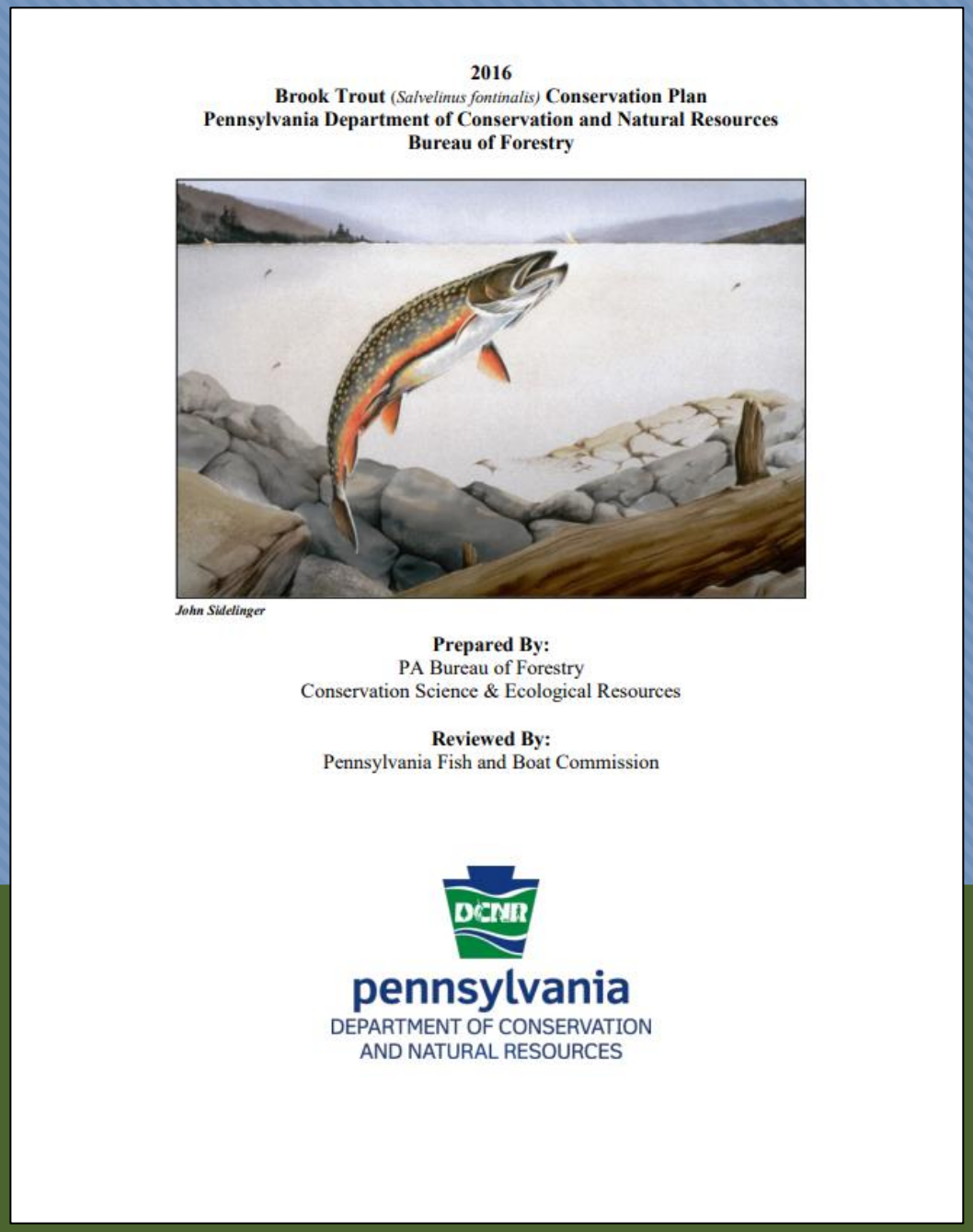
Tools for project prioritization

- Classification Systems; which interact with one another
  - DEP Chapter 93 Classifications: High Quality (HQ) and Exceptional Value (EV) Waters
  - PFBC Trout Biomass Designations: Class A Wild Trout (Class A-D) and Wilderness Trout Streams
  - DCNR Classifications: Wild or Scenic; Recreational and Modified
- Internal tools – Specialized GIS layers and team
- Opportunistic projects in alignment or proximity to other work



Existing Partners

- PA Fish and Boat Commission
- Dept of Environmental Protection
- Penn State Center for Dirt and Gravel Roads
- North Atlantic Aquatic Connectivity Collaborative
- US Geological Survey
- County Conservation Districts
- Regional watershed organizations
- Wildlife organizations
- …And many others



2016

Brook Trout (*Salvelinus fontinalis*) **Conservation Plan**

Pennsylvania Department of Conservation and Natural Resources

Bureau of Forestry

John Sidelinger

Prepared By:

PA Bureau of Forestry

Conservation Science & Ecological Resources

Reviewed By:

Pennsylvania Fish and Boat Commission

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Brook Trout Conservation Plan

The goal of this plan is to maintain and implement strategies to sustain and enhance healthy, naturally reproducing brook trout populations on State Forest Lands. (2016)

Contents

- Life History, Ecology, Impetus to care
- Classification Systems and Partner Orgs
- Reference to Additional Resources
- **Stressors and Conservation Measures**
  - Background, goals, and objectives for each
- Robust references

Table of Contents

Stressors and Conservation Measures

- Identifies seven primary stressors to brook trout populations:
  - **Land Management** (Minimize impacts)
  - **Increasing Water Temperatures** (Prevent heating, promote cooling)
  - **Introduced Species** (Avoid non-native species introductions)
  - **Sedimentation and Erosion** (Prevent human-caused erosion/ sedimentation)
  - **Pollutants** (Prevent Impacts from pollutants)
  - **Lack of Instream Habitat** (Improve habitat)
  - **Barriers to Fish Passage** (Remove barriers)
- Provides background, goals, and several management objectives for each

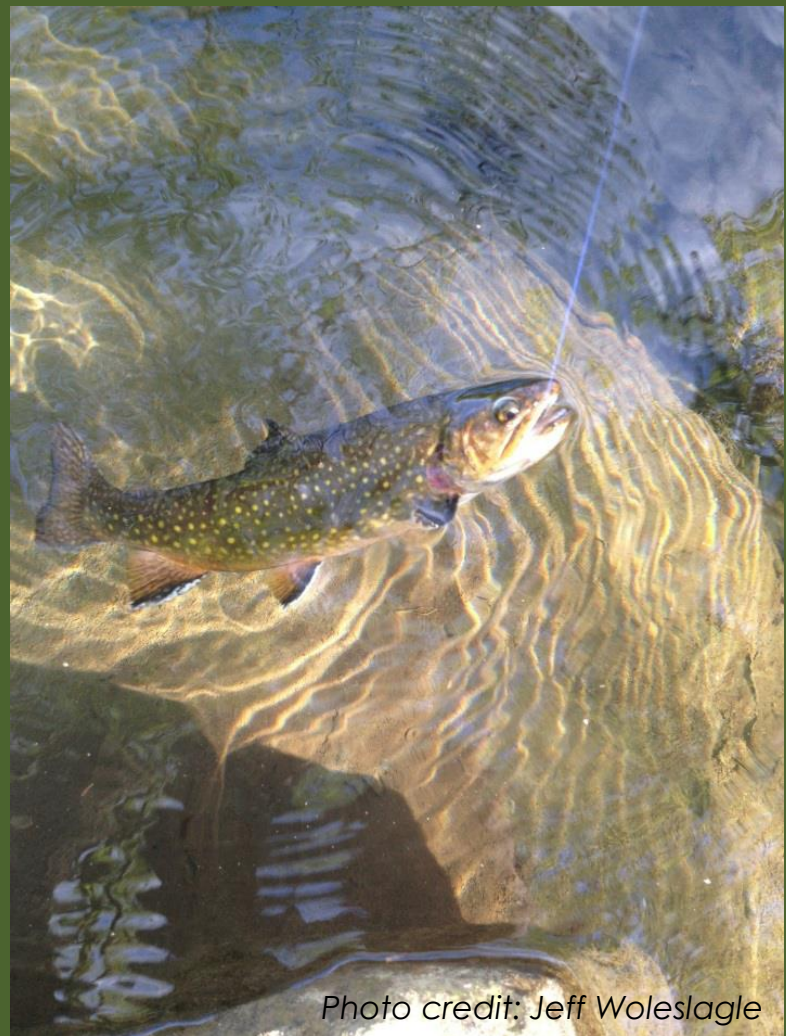

Photo credit: Jeff Woleslagle

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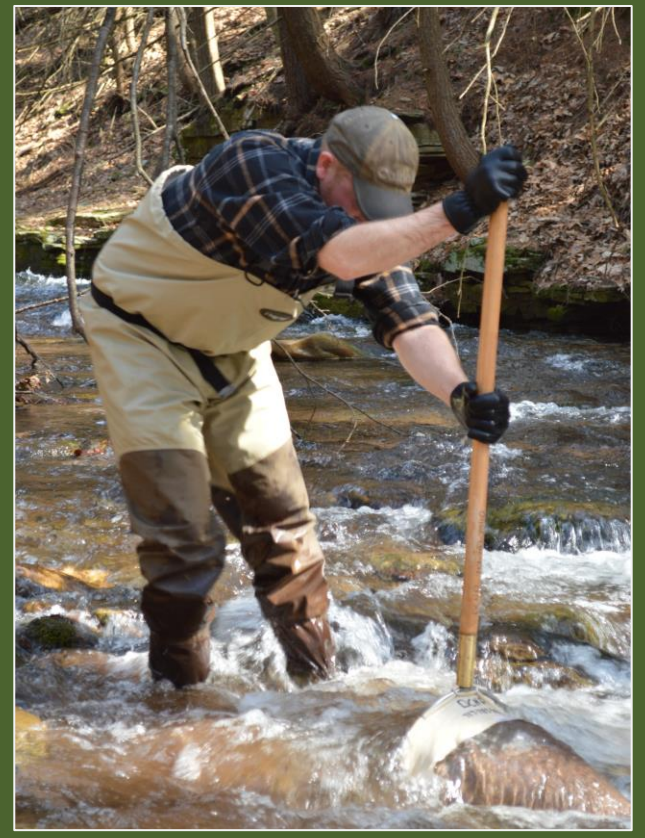
Implementation

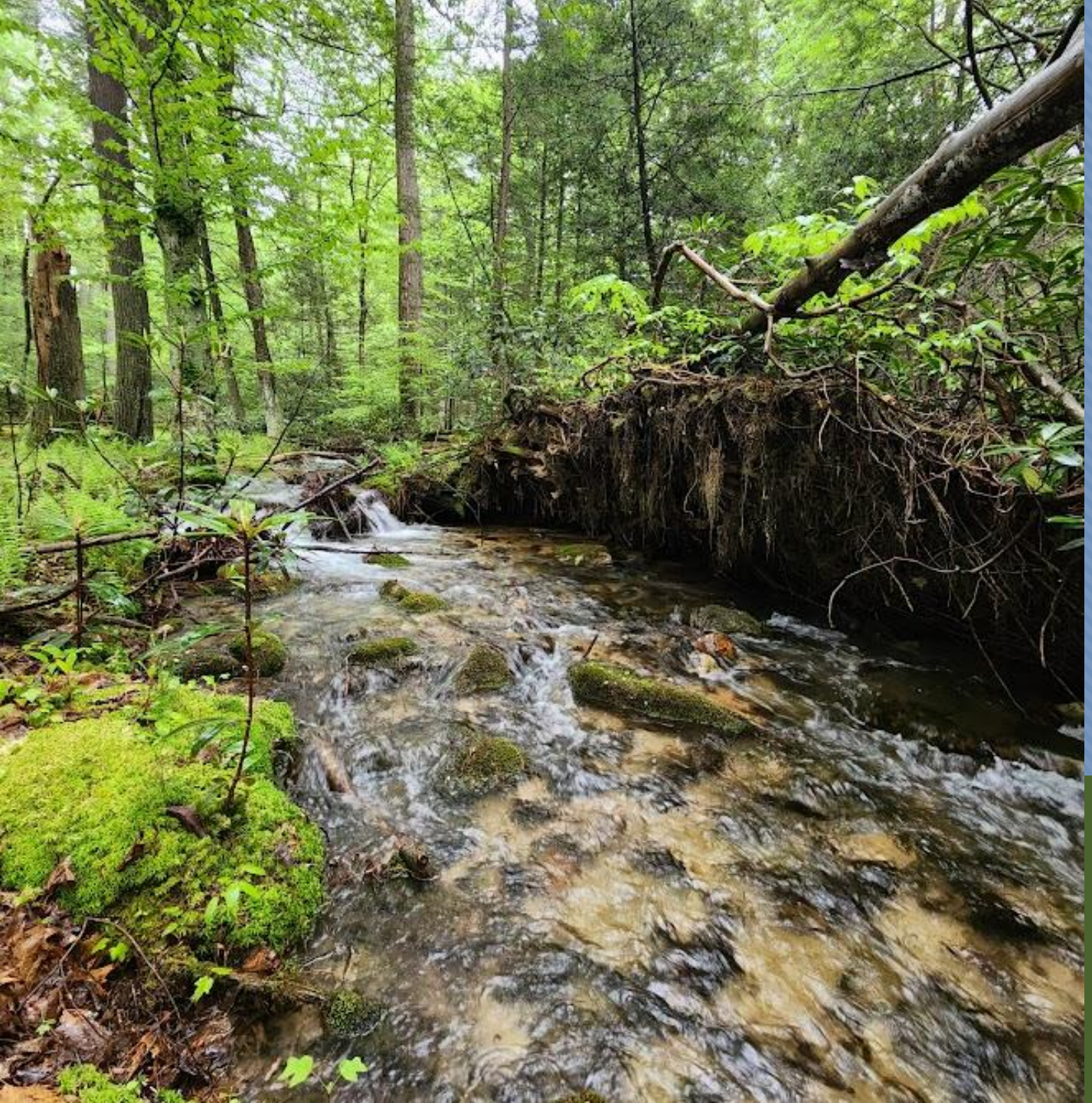
Large Woody Material Additions

Gas Monitoring: Water quality and Aquatic invertebrate surveys



Bridge and Culvert Redesign

Field Training for North Atlantic Aquatic Connectivity Collaborative (NAACC) Aquatic Organism Passage (AOP) Assessment Protocol



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Thank you

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