



Cornell University

Department of  
Environmental  
Conservation

## 2017 New York Environmental DNA Workshop: Research Frontiers & Management Perspectives

### *POST-WORKSHOP SUMMARY*

Sept 21, 2017, 9am – 5pm  
Stocking Hall, Cornell University

### Workshop Objectives

The purpose of this workshop was to bring together those working on Environmental DNA (eDNA) projects and interested parties to demonstrate and share the breadth of current and developing applications of eDNA for conservation in New York State. This workshop also served as a platform to explore limitations of both the science, as well as the capacity of management responses to respond to detections. Participants were free to take part in and ask questions of a joint researcher and manager panel.

### Presentations

**An overview of environmental DNA: Science & Application**, Dr. David Lodge, Director, Atkinson Center for a Sustainable Future Professor, Department of Ecology and Evolutionary Biology, Cornell University

**Detecting declining and extinct frogs with eDNA**, Dr. Kelly Zamudio, Goldwin Smith Professor, Department of Ecology and Evolutionary Biology, Cornell University

**Use of environmental DNA to detect and quantify brook trout populations in Adirondack Mountain streams**, Dr. Barry Baldigo, Research Biologist, U.S. Geological Survey

**Novel methods for early detection of the bloody red shrimp (*Hemimysis anomala*)**, Dr. Meghan Brown, Associate Professor, Hobart & William Smith Colleges

**Monitoring the expansion of invasive round goby in the Mohawk River/Barge Canal**, Scott George, Biologist, U.S. Geological Survey

**The next eDNA target: Microparasites**, Dr. Rod Getchell, Assistant Research Professor, Cornell University

**Detecting oak wilt using molecular techniques**, Karen Snover-Clift, Director, Plant Disease Diagnostic Clinic, Cornell University

**Using eDNA to inform invasive species management responses**, Dr. Tammy Newcomb, Senior Water Policy Advisor, Michigan Department of Natural Resources

**Developing partnerships for early detection of aquatic invasive species using eDNA: A case study**, Rob Williams, Invasive Species Program Coordinator, St. Lawrence Eastern Lake Ontario Partnership for Regional Invasive Species Management, The Nature Conservancy

**Fish Trackers: Students, Scientists, and eDNA**, Dr. Donna Cassidy-Hanley, Senior Research Associate, Cornell University

**Responding to positive eDNA results: A fisheries management perspective**, Steve LaPan, Section Head, Great Lakes Fisheries, NYS Department of Environmental Conservation

Presentations are available at: <http://www.nyisri.org/research/environmental-dna/>

## Summary

In response to statewide interest, the New York Invasive Species Research Institute hosted a free one-day workshop on the topic of environmental DNA for conservation and invasive species detection in partnership with the NYS Department of Environmental Conservation and the Atkinson Center for a Sustainable Future.

Presentations covered a range of topics, beginning with an overview of Environmental DNA, as well as several in-state examples (bloody red-shrimp, round goby, and native brook trout detection), and an international example using eDNA to detect declining and extinct frog species in Brazil. The morning's talks also encompassed new and emerging applications for detecting microparasites, and pathogens, like oak wilt.

In the afternoon, talks shifted from research to management and application, including an agency perspective on how eDNA is being used in the state of Michigan, a realistic view of how fisheries managers could use eDNA results, an eDNA citizen science project (Fish Tracker) involving high school and middle school students, and a talk on effectively developing eDNA partnerships.

Central to the workshop was an afternoon discussion panel with both researchers and managers, which generated conversation around controversial findings, issues with detection, and future research and project directions. Recommendations are detailed below:

## Recommendations

- 1) Improve communication between eDNA researchers and managers; within and between agencies and organizations
  - a. Create a network of researchers involved in eDNA research
  - b. Develop recommended contacts for each related agency for reporting purposes
  - c. Establish reporting procedures for detection of high profile invasive species, or those of conservation concern (rare, threatened, endangered)
- 2) Establish a quality control protocol for laboratories
  - a. Consider establishing a certification process for labs that work with eDNA (using Michigan as an example)

- 3) Promote research projects and partnerships which expand the capacity of eDNA to aid in conservation efforts
  - a. Support the development of additional markers for native and high priority aquatic invasive species
  - b. Promote projects using a metabarcoding (multi-species detection) approach, and including native species of conservation concern.

## Workshop Participants

Approximately 85 people from across the state participated in the workshop. Participants represented various state & federal agencies (NY Department of Environmental Conservation, US Fish & Wildlife Service, US Geological Survey, National Parks Service), NGO's (The Nature Conservancy, Ausable River Association) and academic institutions (Cornell University, SUNY Oneonta, Hobart & William Smith College, Siena College).

## Workshop Organizers

Carrie Brown-Lima  
Director, New York Invasive Species Research Institute  
Cornell University  
226 Mann Drive  
Ithaca, NY 14853  
(607) 255-2854

Dr. David Lodge  
Director, Atkinson Center for a Sustainable Future  
Cornell University  
200 Rice Hall  
Ithaca, NY 14853  
(607) 255-7535