

*The latest updates from the Eightmile River Wild & Scenic Watershed*



*In the watershed | Photo by Frank Dinardi*

## **Chairman's Column: Making Connections**

*by Anthony Irving*

Connections are at the heart of the health and long-term viability of the Eightmile River watershed. When in 2008 the Eightmile River was adopted by Congress as one of the nation's Wild and Scenic River systems, the Eightmile River Wild & Scenic Coordinating Committee (ERWSCC) took a watershed approach.

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## **Community Helps Combat Invasive Water Chestnut in Hamburg Cove**

*by Riley Doherty*

In preparation for Tropical Storm Fred in August 2021, Hartford released water from its retention pond into the Connecticut River. Along with the stored water, were large mats of invasive water chestnut growing in the pond, which upon release made their way downstream dispersing and dropping seeds throughout the Connecticut River. In summer of 2022, a local resident notified us that she found water chestnut plants growing near her dock in Hamburg Cove. Another local resident, a dedicated steward of Selden and Whalebone Coves, warned us how bad the situation could become if the plants were not removed before their seeds dropped.

Water chestnut (*Trapa natans*) is an annual aquatic plant native to Europe, Asia, and Africa. It was brought from Europe to the Cambridge Botanical Garden at Harvard University in 1877 for ornamental purposes and has since spread across the east coast. Non-native plants tend to have no natural predators

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## Chairman's Column *continued from page 1*

Protecting the river's water quality requires protection of the over 150 miles of tributaries connecting this 40,000-acre watershed.

Protections begin with the waterways. Riparian corridors – protective buffers for aquatic species and processes – control light and temperature and provide habitat. These waterway buffers not only safeguard river waters but determine how well aquatic systems are maintained. Connection with upland habitats, links and aids in dispersal and migration for wildlife. The nearly 15,000 acres of protected open space in the watershed is at the heart of these connections by providing greater landscape complexity which in turn equates to added biological diversity.

How do we know this?

It is with science and ongoing study and testing that allows us to document and measure the quality of and changes to watershed resource values. Just this year, we completed two such studies. One of our most in-depth research projects is a resurvey of critical habitats, significant natural communities, and rare plant occurrences in the Eightmile River watershed that was first completed in 2003. Comparing results show how plant communities are evolving during this period. Another study this past summer inventoried the presence, variety and distribution of freshwater mussels. How they fare is in direct

These waterway buffers not only safeguard river waters but determine how well aquatic systems are maintained.

correlation to water and habitat quality.

Some scientific studies are ongoing with a couple going back nearly 20 years. Two of these provide hourly data in the watershed. With sensors placed throughout the river system we can trace stream temperatures and input levels of elements such as salts and chart how they change seasonally and over the long term. Another study is based on population assessments of benthic macroinvertebrates (larval insects) found in various feeder streams. The presence of targeted larval species indicates healthy aquatic habitats. The results of these studies further our knowledge of “what’s out there” and can then be compared with baseline measures found in other healthy watersheds.

In combination, the results of all these studies provide an in-depth look at watershed health both in the present and over time. You can read about some of the latest results in this issue of the *Eightmile River News* while other study results are available on our web-

site at [www.eightmileriver.org](http://www.eightmileriver.org).

From river to ridgeline, it is the water resources, riparian buffers and undeveloped uplands, along with the linkages between them, that form this connected web, making the Eightmile River Watershed a healthy, naturally functioning ecosystem for flora and fauna. Science is showing us the value of these connections and that the Eightmile River Watershed is truly a scientific wonder.

## What's Behind the Dismal 2022 Herring Runs?

*By Steven Gephard*

The millions of river herring (anadromous Alewife and Blueback Herring) that used to enter the Connecticut River and its tributaries annually declined dramatically when Europeans arrived and began building dams to power mills. These dams blocked the fishes' migration and greatly reduced the amount of spawning habitat available to them.

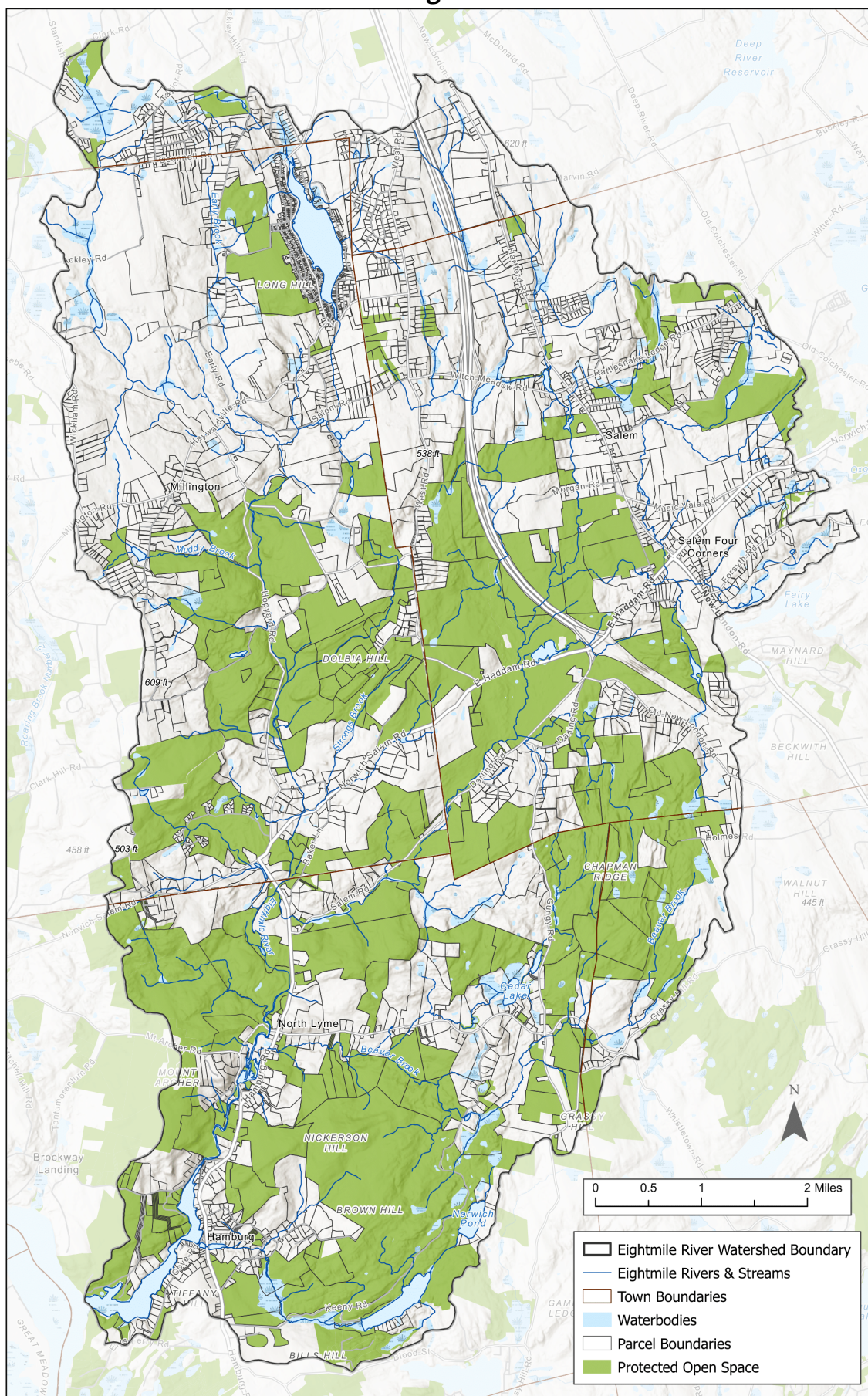
The CT Department of Energy and Environmental Protection along with many partners has been working to get fish around these dams and rebuild the size of runs in the Connecticut River and many other streams in our state. The Eightmile River has

been an important part of this effort and with help from local partners including the Lyme Land Conservation Trust, two fishways were built and three dams removed to restore access to most of the historical habitat in the watershed.

With such accomplishments here and statewide, the numbers of fish should be going up. But they have not and 2022 saw the worst returns that have ever been recorded. Returns to the Eightmile River as recorded at the Moulson Pond fishway were four Alewives and 87 Blueback Herring. There should have been thousands of both. The causes could be many, but a major factor is believed to be the offshore trawl fishery for Atlantic Herring, a close ocean relative. River herring mingle with the schools of Atlantic

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### Preserved Lands in the Eightmile River Watershed



## Biodiversity in the Watershed: A recent report

By Christine Darnell

**Background:** In 2019, the Eightmile River Wild & Scenic Coordinating Committee (ERWSCC) requested that botanist William Moorhead complete a resurvey of sites throughout the watershed that had previously been determined in the early 2000's to be significant or critical habitats. These sites host species that are considered imperiled (plant and animals species that may be uncommon due to limited habitat or those considered rare, threatened or endangered). The report below summarizes those findings.

**The findings:** Botanist William Moorhead focused his report primarily on changes he found in critical habitats, natural plant communities and rare plant occurrences in the watershed. The last extensive survey was done by him in 2003. Here are some takeaways from the most recent report:

With regard to critical habitat, comparing 2003 sites to 2019-2020 sites, there is an increase of 20 acres of critical habitat and significant natural community sites on account of the discovery of 18 new sites totaling 28 acres, in contrast to the loss of 7 sites.

Sadly, there has been a loss of 20 acres of critical habitat and significant natural communities due to natural processes, invasive species and damage done by Eversource.

Loss of habitat in the Sand Barrens and other open herbaceous areas have occurred due to the natural succession of forest and shrub thickets and the absence of management or disturbance. Both native and invasive woody plants (especially Autumn Olive or *Elaeagnus umbellata*) are involved in this succession. In some cases, what has resulted is a loss or reduction of some of the rare plant populations.

In the area of the Atlantic White Cedar Swamp (AWC), the cedar population is in significant decline. Beaver is a factor in part, but the gradual decline of AWC prominence in AWC swamps is a phenomenon that has been occurring state-wide for a long time. (He notes that some kind of intervention or natural disturbance will be necessary to control competition from hardwoods.)

The good news in other parts of the watershed, is the evidence of a drop in deer population since the 2003 study, judged by overall lack of evidence of browse, deer trails and scat, and the well-developed forest understory in many areas. (deer population was estimated to be 21-25 per square mile in 2003.)

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## Herring Runs *continued from page 2*

Herring and the fishery targets Atlantic Herring off Block Island in late winter, when our river herring are congregating to enter Long Island Sound.

After years of debate, the New England Fisheries Management Council (NEFMC) closed the fishery but the following year, the courts vacated the action, saying the process was done improperly. The fishery resumed in the winter of 2021-22, just before the 2022 spawning runs.

Conservationists are now appealing to the NEFMC to re-start the process and do it correctly. Migratory species have a tough time anyway, so we need to stop these large nets from intercepting our fish before they can spawn. They need the same protection in inshore waters as that granted to them off the coast of Maine.



*Alewife being videotaped at Moulson Pond Fishway*

## The Eightmile Wild & Scenic Coordinating Committee Members

**Anthony Irving, Chair**

Lyme Land Conservation Trust

**Ed Natoli, Vice Chair**

Town of Salem

**Dave Gumbart, Secretary**

The Nature Conservancy

**David B. Bingham**

Salem Land Trust

**Richard Chyinski**

Salem Land Trust

**Anthony Griggs**

Town of Salem

**Kim Barber-Bradley**

Town of Salem

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**Mary Augustiny**

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**Bernie Gillis**

Town of East Haddam

**Rob Smith**

Town of East Haddam

**Pete Govert**

East Haddam Land Trust

**Cameron Beard**

East Haddam Land Trust

**Liz Lacy**

National Park Service

**Eric Thomas**

CT DEEP

Staff: **Patricia Young**

**Riley Doherty**

Thank you to the Lyme Land Conservation Trust for their continued support as ERWSCC's fiscal agent.

## 2023 Events & Announcements

### Upcoming Events

**July 2023: Summer Family Programs** at Devil's Hopyard State Park: Join us three Saturday mornings in July for fun and educational family programs.

**October 2023: Eightmile RiverFest** at Devil's Hopyard State Park: Its our biennial celebration of the Eightmile River! Visit with local and state environmental organizations, learn about native wildlife, listen to great music and warm up with tasty soup and cookies.

[www.eightmileriver.org/upcoming-events/](http://www.eightmileriver.org/upcoming-events/)

### 2022 Education and Community Approved Grant Projects

**Boy Scouts of America:** \$250 for QR-Code trail mapping project at Walden Preserve in Salem.

**Boy Scouts of America:** \$500 for safety education and trail markings at Walden Preserve in Salem.

**Lyme Pollinator Pathway:** \$2,600 for creation of native plant rain garden to enhance pollinator habitat and treat stormwater runoff at Hamburg Cove.

**Lyme Land Conservation Trust** (on behalf of the Goodwin Trail Committee) \$2,215 for the

installation of several bog bridges along the trail to prevent erosion and sedimentation.

**Colchester Land Trust:** \$1,600 for appraisal for possible land acquisition in upper part of the watershed.

**East Haddam Land Trust:** \$1,500 for printing of calendars which also features information about the Eightmile River Watershed.

**East Haddam Land Trust:** \$7,100 for survey costs and kiosks for new land acquisition information with land partially in the Eightmile River Watershed. (not yet invoiced)

Learn more about our Community Grant Program at [www.eightmileriver.org/community-grant-program/](http://www.eightmileriver.org/community-grant-program/)

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|--|------------------|
| Contract Staff & Intern                                | \$89,600         |
| Operating Costs  | \$22,039         |
| Outreach & Education Comm                              | \$4,527          |
| Protection, Management & Project Review Comm           | \$1,025          |
| Monitoring & Science Comm                              | \$2,477          |
| Executive Comm   | \$2,447          |
| Annual Report/Newsletter                               | \$6,210          |
| Website Updates  | \$1,800          |
| Community Grants (includes grants previously approved) | \$36,365         |
| Scientific survey and data review                      | \$15,345         |
| <b>Subtotal</b>  | <b>\$181,835</b> |
| Approved scientific survey (not yet invoiced)          | \$3,860          |
| Approved Community Grants (not yet invoiced)           | \$7,100          |
| <b>Grand Total</b>                                     | <b>\$192,795</b> |

## Challenges for Native Species in a Changing Climate

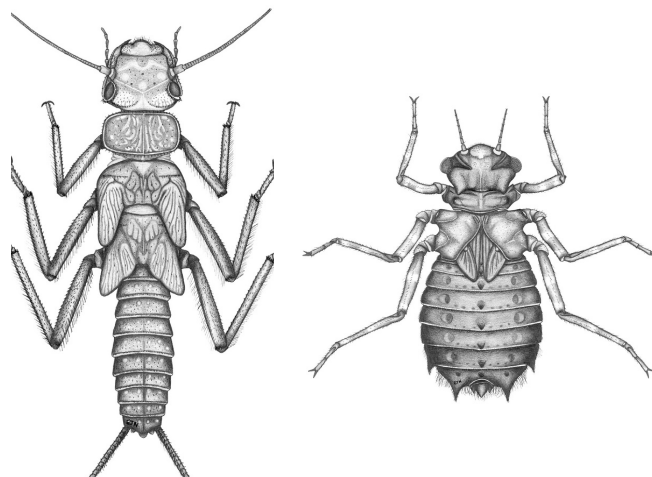
by Patricia Young

The old saying goes “If you don’t like the weather in New England, just wait a minute, it will change.” Changing weather is one thing---but a changing climate is something else. And what does that mean for some of our native aquatic species?

According to the National Oceanic Atmospheric Administration (NOAA), “Weather and climate describe the same thing—the state of the atmosphere—but at different time scales.”. “Weather”, according to NOAA “is what you experience when you step outside on any given day. In other words, it is the state of the atmosphere at a particular location over the short-term. Climate is the average of the weather patterns in a location over a longer period of time, usually 30 years or more.”

In the Department of Energy and Environmental Protection’s *Connecticut: Our Changing Climate Booklet*, it is noted that climate change can affect everything from our health, agricultural practices, threats to infrastructure such as roadways, to changing forest species and yes, even our local rivers. Since 1950 there has been an increase in average air temperature of 2.2°F resulting in warmer seasons. While it may seem like a small change, it could be the difference between snow or rain. And wet rainy winters come with drier summers, with higher heat indexes and humidity. According to the National Integrated Drought Information System, the northeast region experienced historic droughts in 2000, 2016, 2020 and 2022. And locally we see the results with smaller streams drying up and limited flow in larger watercourses.

Warmer air temperatures mean warmer water temperatures. Warmer water holds less dissolved



oxygen. Increased storm intensities send torrents of stormwater to local rivers, eroding streambanks and carrying soil and other pollutants. And all of these events lead to changes in streams, presenting challenging living conditions for aquatic animals.

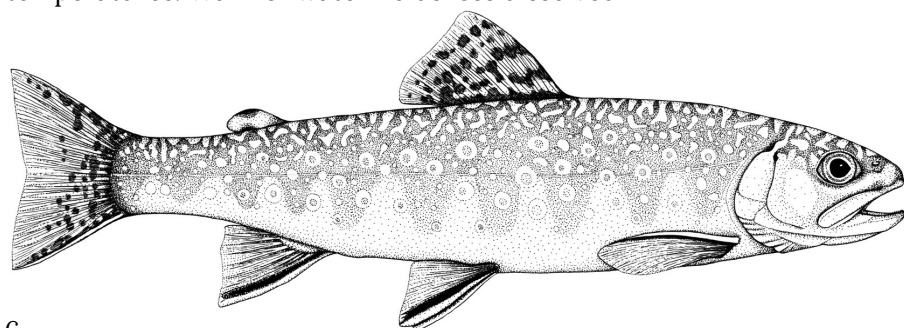
Fish, such as our native brook trout, along with other macroinvertebrates, such as mussels, dragonflies and stoneflies, are often referred to as “indicator” species. Their presence or absence can give us further information about the quality of the habitat.

Native brook trout for instance need specific temperature ranges to survive, becoming stressed at 65°F (18.3°C) and during times of low stream flow, can become physically trapped along stream segments.

Stoneflies and other sensitive macroinvertebrates require high levels of oxygen which they get from the water by filtering it through their gills or their skin, and are therefore impacted by polluted or warm water.

While they are somewhat tolerant of urbanization, our common two-lined salamander’s territory is impacted by stream scouring and loss of canopy, altering both their habitat and decreasing their prey base.

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**Above:** Common stonefly and dragonfly larva

**Left:** Native brook trout

Illustrations by E. Nedeau,  
Biodrawiversity

## Community Helps Combat Invasive Water Chestnut in Hamburg Cove

*continued from page 1*

because they did not evolve with the species here. Water chestnut has floating leaves called a rosette and a submersed stem that can grow 12-15 ft long. Each rosette can produce up to 25 seeds, or fruits, and each seed can produce 15 rosettes. Seeds can remain viable for up to 12 years on the river bottom, requiring regular plant removal for years. For these reasons, the plant can spread rapidly and can develop into dense mats 3 layers thick, which becomes a major problem for boat recreation and the aquatic ecosystem. Water chestnut can be removed by reaching down as far as possible and pulling the plant up by its stem. Ideally, the entire plant including the seed at the river bottom will be removed.

After being notified of the water chestnut in Hamburg Cove, a stewardship group was formed of residents and other stakeholders, which met over Zoom. We also notified the CT Office of Aquatic Invasive Species who surveyed and removed the water chestnut in the Cove twice over the summer. In September, a third on-the-water survey was completed with the help of members of the local Yacht Club and residents. Luckily, there weren't any plants left. A return survey will be schedule for this June when plants begin appearing again. If you'd like to join the stewardship group and help survey the Cove this summer, email us at [info@eightmileriver.org](mailto:info@eightmileriver.org).



## Invasive Water Chestnut in Hamburg Cove

### 1 See it.

Characteristics:

- Annual non-native aquatic plant
- Rosette of floating leaves
- Submersed stem up to 15 ft
- Seed has 4 1/2-inch barbed spines and is viable for 12 years



### 2 Pull it.

Try to pull up the entire stem and root system with the seed on the bottom.



### 3 Report it.

Report sighting via email with date, location (lat,long), # of plants, and if you pulled it to [info@eightmileriver.org](mailto:info@eightmileriver.org)



### 4 Dispose of it.

Compost it far away from water sources, throw it in the trash, or dry it and burn it.



For more info:



**Above:** Flyer created about water chestnut

**Below:** Illustration of water chestnut -University of Florida

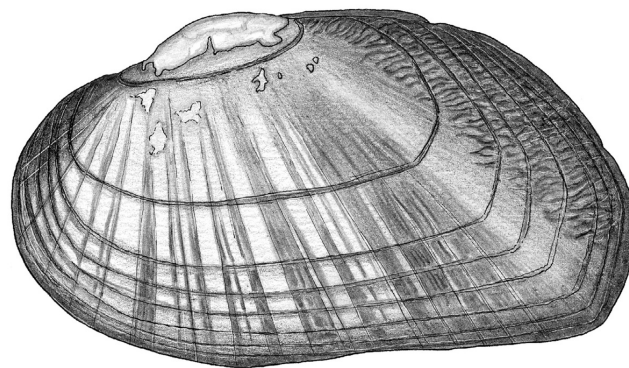
**Below left:** Survey on the water with Riley Doherty and Earl Mummert from Hamburg Cove Yacht Club



## Freshwater Mussels in the Eightmile River

By Ethan Nedeau, Biodrawversity LLC

**Background:** Nine of the 12 native freshwater mussel species known to occur in Connecticut have been found in the Eightmile River. Only three rivers in the entire Connecticut River watershed—the Connecticut River, Farmington River, and Salmon River—support higher mussel diversity. This exceptional diversity can be attributed to the broad range of aquatic habitats in the Eightmile River, from tidal waters near the Connecticut River to high-quality headwater streams in its upper watershed, and the diverse fish assemblages in these areas. It is one of the few rivers in Connecticut where the state-endangered brook floater mussel (*Alasmidonta varicosa*) occurs, and it also supports four other mussel species that are state-listed (or have been proposed for listing) in Connecticut including creeper mussel (*Strophitus undulatus*; proposed Threatened), eastern pearlshell mussel (*Margaritifera margaritifera*; Special Concern), alewife floater mussel (*Anodonta implicata*; proposed Special Concern), and eastern pondmussel (*Ligumia nasuta*; Special Concern).



Brook floater mussel

Illustration by E. Nedeau, Biodrawversity

Brook floater is one of the most endangered aquatic animals in Connecticut. The United States Fish and Wildlife Service (USFWS) recently reviewed its status to determine if federal protection under the US Endangered Species Act was warranted. Although federal protection was ultimately denied, brook floater conservation remains the highest priority for state wildlife agencies, including the Connecticut Department of Energy and Environmental Protection (CTDEEP). The Eightmile River figures prominently into brook floater conservation in Connecticut. Prior to 2022, brook floater had not been observed in the Eightmile

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Two-lined salamander

Illustration by E. Nedeau, Biodrawversity

## Challenges for Native Species

*continued from page 6.*

As “living filters”, native mussels are important to aquatic ecosystems, but they in turn are heavily impacted by water pollution caused by stormwater, industrial discharges and streambank erosion. And mussel species like the brook floater, which are now found in only about a dozen streams in Connecticut depend on fish species like the native brook trout as a host for reproduction.

As a river group, the Eightmile River Wild & Scenic Coordinating Committee spends considerable time monitoring local streams and engages specialists to periodically document specific habitat and species. It is only through a long-term approach that we can most effectively work with local communities and state organizations to make management decisions that consider both weather events along with climate change.



## Freshwater Mussels *continued from page 8*

River since 2008, when Ethan Nedeau found eight live animals in one area. Prior to that, one live brook floater had been found in 1995. The 2008 report described the brook floater population in the Eightmile River as “highly insular and existing at low densities.”

There were very few mussel surveys in the Eightmile River or its tributaries in the last 15 years. All were in response to proposed infrastructure or development projects or dam removals. There was a need to reassess the mussel community and habitat, provide updated mapping of species and habitats, and identify threats and conservation opportunities.

**Freshwater Mussel Study (2022):** The Eightmile Wild and Scenic Coordinating Committee reached out to Ethan Nedeau of Biodrawversity LLC in 2022 to develop a study plan to comprehensively reassess freshwater mussel populations in the Eightmile River and its tributaries. The mussel survey focused on 25.3 stream miles within the Eightmile River Wild and Scenic Watershed, including the mainstem Eightmile River, East Branch, Harris Brook, Beaver Brook, and Falls Brook. Fieldwork was conducted in August of 2022, with some follow up work planned for the spring of 2023.



*Empty Eastern pearlshell mussel spotted on the banks of the river. Listed as a species of concern in Connecticut*

*Photo by P. Young*

For more information on freshwater native mussels, please visit...

<https://portal.ct.gov/DEEP/Wildlife/Freshwater-Mussels/Freshwater-Mussels-of-Connecticut>

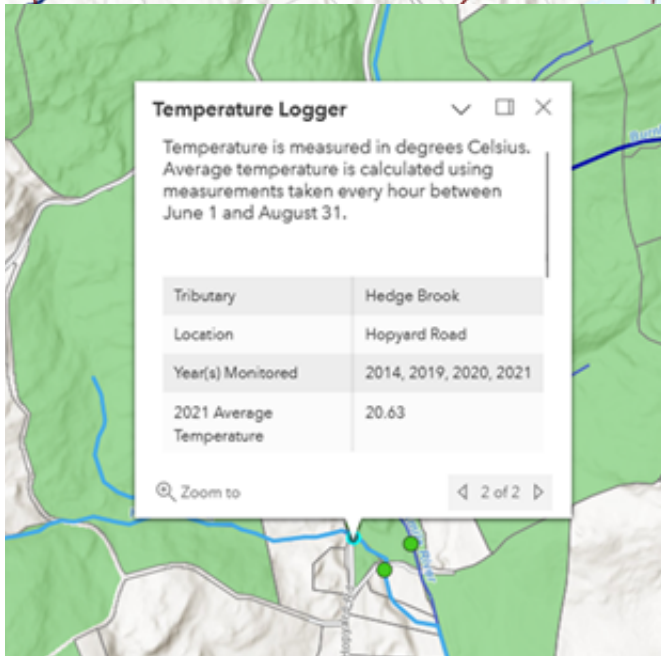
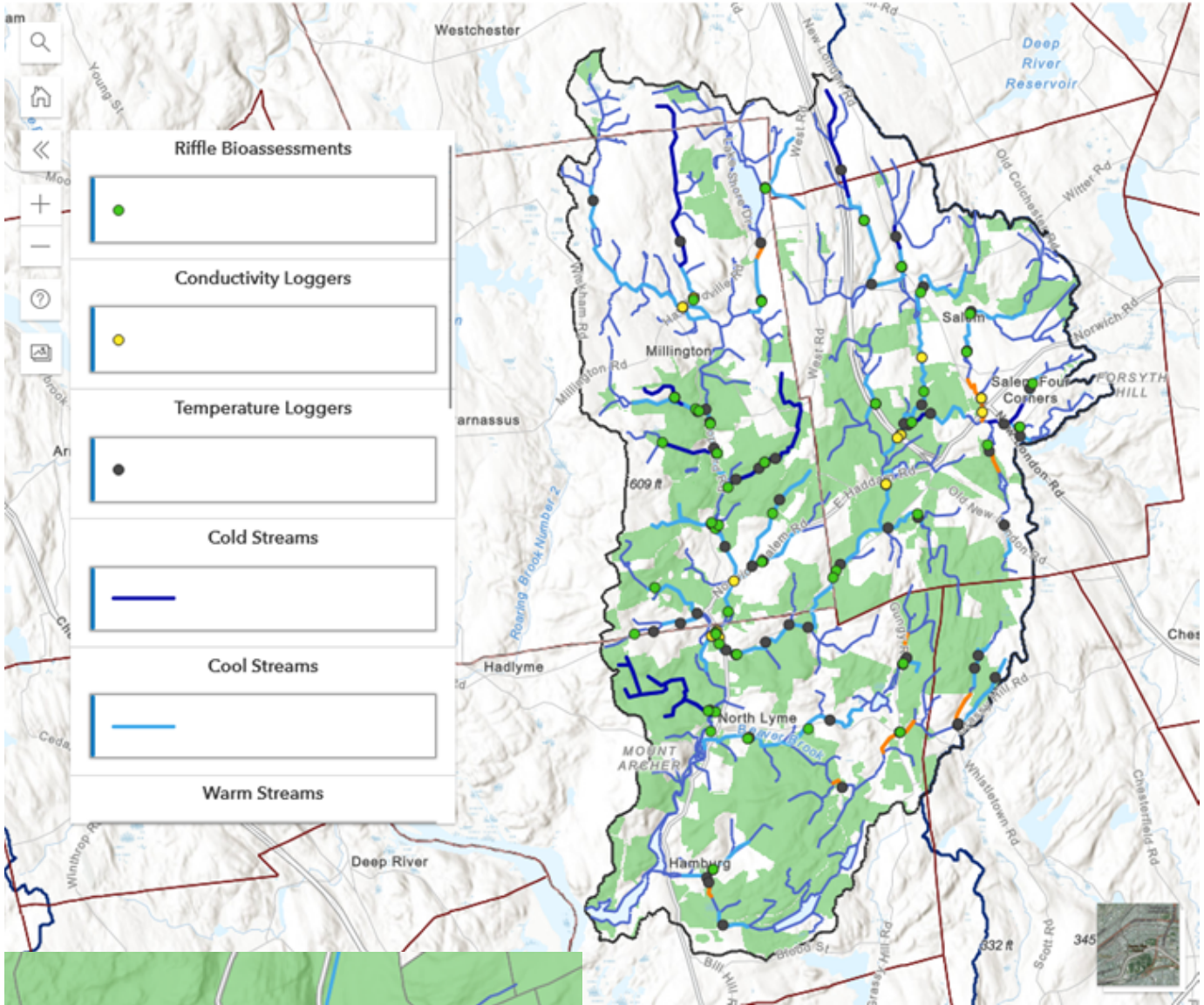
There were several highlights of the 2022 fieldwork. First, not only were live brook floater found in the Eightmile River in the same area where they had been found in 2008, but live brook floater mussels were also found in the East Branch for the first time ever! Brook floater populations appear to remain very small and isolated, but there is some evidence of recruitment.

Nine mussel species were found, matching species totals from all previous survey work in the watershed. The state-listed eastern pearlshell mussel was found throughout the entire study area, from the lower reaches of the Eightmile River upstream from Hamburg Cove into small tributaries (East Branch, Harris Brook, and Beaver Brook). Creeper and triangle floater mussels were found at low densities only in the East Branch. Three species—alewife floater mussel, eastern pondmussel, and eastern lampmussel—were only found in the lower river. Follow-up surveys in 2023 will focus on a select few reaches that were difficult to access in 2022.

### Meet the Scientist

Ethan Nedeau is the sole owner of Biodrawversity LLC, an ecological consulting firm based in western Massachusetts that serves all of New England. Ethan is a freshwater ecologist and malacologist who has led nearly 900 projects in the northeastern United States over the last 26 years. Projects have spanned a broad range of objectives, from basic research on endangered freshwater mussel populations for state and federal natural resource agencies; inventories and baseline data collection for a range of clients; consultation for projects related to transportation infrastructure, dam removal and river restoration; compliance monitoring for hydropower companies; and pollution assessment. Ethan has also authored four widely cited publications on the freshwater mussels of Maine, Connecticut, the Connecticut River watershed, and western North America. Ethan is also an illustrator and graphic artist. In his spare time he trains for and competes in endurance events ranging from cross-country races, to snowshoe marathons, to obstacle course races.

## Water Quality Monitoring Interactive Map



## Interactive Mapping Tool on New Eightmile River Website

By Riley Doherty

The new Eightmile River website was launched in 2022, which includes a new interactive mapping tool under the Water Quality Monitoring page. Here, users can explore the ways in which we monitor water quality throughout the watershed. Historical water quality data can be viewed by clicking on the various points on the map. An interactive legend allows users to turn different layers on and off. With the search tool, users can look up their address in the watershed, see which streams are nearby, and what data has been collected.

Explore the new website at [www.EightmileRiver.org](http://www.EightmileRiver.org)

## Biodiversity *continued from page 4.*

A standout in the report is the twenty-seven new occurrences of state-listed rare plants in the watershed, roughly double the amount previously documented. These include five state endangered plant species, one state threatened and thirteen special concern plant species. The Eightmile River watershed is a New England stronghold for three plants of regional conservation concern:

*Scutellaria integrifolia*, Helmut flower or Rough Skullcap, a member of the mint family. A showy, early summer blooming wildflower, Helmut flower is found in moist woods, fields, bogs and swamps.

*Aristolochia serpentaria*, Virginia snakeroot or Virginia dutchman's pipe, is a perennial groundcover. Virginia Snakeroot lives primarily in mesic habitats with lots of shade and rich in organic matter, and is found predominantly in intact old-growth areas or late-successional forests. This plant grows sporadically as solitary plants, rather than in patches, and relies on consistent soil conditions. Virginia snakeroot is listed as threatened in Connecticut, as it is easily crowded out by faster growing invasives and requires older stands of forests.

*Xyris smalliana* or Small's Yelloweyed Grass, a wetland perennial plant and a very rare inhabitant of shorelines, shallow water and floating fens. It is 2-4 feet in height, blooming June to September, with a bright yellow flower. On Small's yellow-eyed grass, the bases of the leaves are usually beet-red.

He also notes the new presence of seven state-listed rare plant species: *Acalypha virginica* (Virginia Copperleaf), *Arsitida longespica* (Slimspike Three-awn), *Carex hirsutella* (Hairy-leaved Sedge), *Desmodium glabellum* (Smooth Tick trefoil), *Lespedeza repens* (Creeping Bush-Clover), *Salix petiolaris* (Meadow willow) and *Vitis x novae-angliae* (New England Grape).

Unsurprisingly, clear cutting and overall disturbance has made a significant impact on the decline of rare plant species in the watershed, and has diminished native plant communities. With one example being maintenance work along the Eversource power line easements. Moorhead made suggestions for future documentation of rare plant communities, particularly in wetland areas. He finished up his report with emphasis on the importance of maintaining biodiversity, protecting the abundance of unique plant species and natural communities, and the overall health of the watershed ecosystem.



Rough Skullcap, *Scutellaria integrifolia*,  
Courtesy of Dave Gumbart



Virginia Snakeroot, *Aristolochia serpentaria*,  
Courtesy of R. W. Smith,  
Ladybird Johnson Wildflower Center



Small's Yelloweyed Grass *Xyris smalliana*,  
Courtesy of Janet Novak, CT Botanical  
Society

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**EIGHTMILE RIVER**  
WILD & SCENIC WATERSHED

*Eightmile River Watershed*  
2 Dolbia Hill Road-East  
East Haddam, CT 06423


*Postal Patron*



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## Contact us

 [info@eightmileriver.org](mailto:info@eightmileriver.org)

 [eightmileriver.org](http://eightmileriver.org) | [WanderOurWatershed.org](http://WanderOurWatershed.org)

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*The Eightmile River Office is now at Burnham Brook Preserve! | Drone photo by Frank DiNardi*