

# Little Tennessee Native Fish Conservation Partnership 2019 Accomplishments

In 2019, the partnership made great strides towards improving the Little Tennessee River Basin. In the field throughout the year, we restored streams, studied and sampled, mitigated wetlands, cleaned up waterways, re-introduced rare fish and mussels. Partners inspired the next generation with educational outreach, completed graduate studies, led snorkeling expeditions and so much more. This year, almost 2,000 acres of land was conserved. We identified specific priority projects and look forward to future successes.

## What is the Little Tennessee Native Fish Conservation Partnership?

The mission of the Little Tennessee Native Fish Conservation Partnership (LT-NFCP) is to promote conservation and restoration of habitat in the Little Tennessee River Basin for the benefit of native fishes and other aquatic wildlife.

[Explore our website here](#)

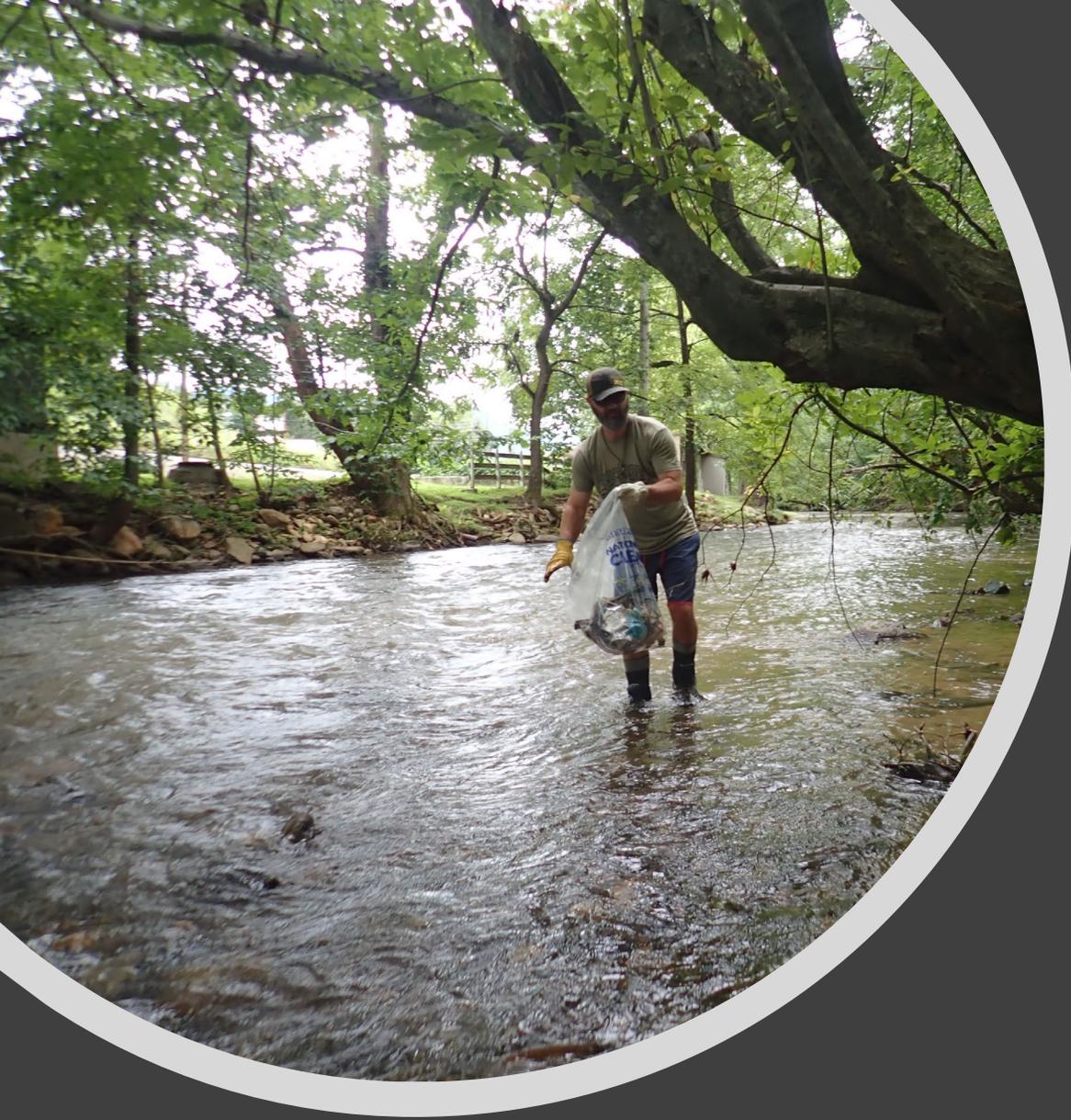


# Steering Committee: LT-NFCP

- In June, the Little Tennessee Native Fish Conservation Partnership (LT-NFCP) steering committee completed **Strategic Planning** for the partnership. The overarching goal was to ensure continuity in momentum as the steering committee changes over time, to manage expectations, and to build capacity for high quality conservation work by creating a framework to collaborate on protection and restoration of the Little Tennessee River basin.
- The *Multispecies and Watershed Approaches to Freshwater Fish Conservation* is published and includes a **chapter describing the history and actions of LT-NFCA** and can be found [here](#).



# American Rivers



- Completed the *Prospective Aquatic Restoration Projects in the Little Tennessee River Basin Report*, which highlights more than 11 different priorities across the Little Tennessee River basin. American Rivers is working with the partners of LT-NFCP on training needs and pairing project managers with projects for implementation.
- **Riparian restoration at East LaPorte Park**, Cullowhee, NC with Mainspring and Jackson County Parks and Recreation planned and ready to plant in fall of 2020 using funds from the Tennessee Valley Authority (TVA).
- Bridge Park, Sylva green infrastructure and restoration project, identified in the Scotts Creek Watershed Action Plan, is moving ahead with fundraising.
- American Rivers is working with Western Carolina University (WCU) to engage students and faculty in **monitoring around the Cullowhee Dam area**. Data from monitoring will be used to aid in planning possible dam removal with WCU and the Tuckasegee Water & Sewer Authority
- **Tuckasegee River Blue Trail** was successfully launched in Dillsboro, NC in August with a celebration that included volunteers cleaning 500 pounds of trash from Scotts Creek.
- Led quarterly meetings of the **Tuckasegee Visioning Group**, a collaboration of partners working together to improve the Tuckasegee River.
- Presented on the LT-NFCA at the **American Fisheries Society** in September at Reno, NV in a special session on *Multispecies and Watershed Approaches to Freshwater Fish Conservation*.



# Conservation Fisheries, Inc

- Continuing **rare fish reintroductions and population monitoring** in the Little Tennessee River system, in support of requirements per FERC settlement agreement. Fish passage translocation activities at the Chilhowee Development include four federally endangered or threatened fish species, including the Smoky Madtom (*Noturus baileyi*), the Yellowfin Madtom (*N. flavipinnis*), the Citico Darter (*Etheostoma sitikuense*; formerly the Duskytail Darter, *E. percnurum*), and the Spotfin Chub (*Erimonax monachus*).



# Defenders of Wildlife

- Through the **Southeastern Hellbender Conservation Initiative (SEHCI)**, working with agricultural landowners in the Little T and across WNC to educate about Best Management Practices (BMPs) for stream protection that benefit hellbenders and other aquatic species. This initiative also connects farmers with financial resources through NRCS to offset their costs to implement those BMPs. Morgan Harris and Mike Knoerr are our SEHCI Private Lands Biologists who do this work on the ground.
- **Landowner outreach** event and BBQ dinner with presentations by Lori Williams (NCWRC), Mickey Clemmons (Michael-Baker Consulting Firm), Jeffrey Epps (NRCS Soil conservationist), and Tony Ward (Hiwassee River Watershed Coalition). Fifteen farmers in attendance with an application for NRCS funding resulting from the invitations to the event
- Visit to **Macon County farmers markets** where we engaged 7 farms.
- Most outreach focused on trying to **work with the Macon County Soil and Water Conservation District (SWCD)**- communicating the project, trying to get them to notify the landowners they know who have stream restoration needs. A lot of effort was put into that relationship.
- Attended several **Beef Cattle Commission and WNC Cattlemen's associations meetings and conferences** with ranchers in attendance from all over WNC, including the Little Tennessee Watershed. We presented at one Beef Cattle Commission meeting on Working Lands for Wildlife.
- Our outreach has resulted in several farmers in the Little Tennessee watershed submitting applications for **NRCS funding to support stream restoration efforts** of varying sizes. We don't yet know which of these will be funded but will have an update on that in mid-2020.
- Little Tennessee River Mainstem near **Coweeta Bottoms Game Lands**: approximately 3000 feet of streambank stabilization on hay land coupled with berm removal, floodplain reconnection, wetland restoration, and a 100 ft riparian buffer; we're also hoping to experiment with some designs to promote gravel bar establishment in a very sediment laden reach; also toying with the idea of adding chunky rocks into the channel for olive darter habitat - known to be upstream. Exploring potential to partner with NCWRC for mussel reintroduction if the gravel bar formation is successful here.
- **Watauga Creek**: small streambank stabilization project on hay land of about 300 ft with establishment of a 35 ft riparian buffer for approximately 500 linear ft.
- **Coweeta Creek**: approximately 600 linear ft streambank stabilization project on hay land, coupled with a 20-35 ft riparian forest buffer coupled with installation of nest and cover rocks for Eastern Hellbenders.
- **Cartoogechaye Creek**: spot fixing about 600 linear feet of a 2500 linear ft reach on hay land and establishing a 20-35 riparian forest buffer along the entire reach; we also plan to install hellbender nest and cover rocks in the whole reach; one side of the creek will have a wetland restoration component as well.
- We had site visits with 2 landowners on **Cartoogechaye Creek** that did not get applications in in time for this year's funding cycle - they may apply for next year.
- We had site visits with 2 landowners on **Middle Creek** that did not get applications in in time for this year's funding cycle - they may apply for next year.

# Duke Energy

- The **sale of the Mission, Bryson, Franklin, Tuxedo and Gaston Shoals Hydro Projects** (total of 18.7 MW) to Northbrook Energy closed on Friday, August 16, 2019.



# Eastern Band of Cherokee Indians

- Completed annual **EBCI USFWS Tribal Wildlife Grant work plan** which included sicklefin redhorse monitoring and restoration efforts, IBI monitoring (3 sites) and wild trout distribution surveys in the Oconaluftee River watershed.
- Continued **freshwater mussel restoration project in the Oconaluftee River** focusing on Wavy-rayed lamp mussel (*Lampsilis fasciola*), Spike (*Eurynia dilatata*), and Rainbow mussel (*Villosa iris*). All species showed excellent growth and survival and we are moving forward to work with the NC Wildlife Resources Commission and U.S. Fish and Wildlife Service to expand restoration efforts.
- Completed **Clean Water Act Section 106 and NPDES permit stream sampling** with overall sample results demonstrating excellent water quality.
- Performed stream restoration project on 1,600 linear feet of **Hunting Boy Branch (Graham County)** including natural channel design features and riparian enhancements
- Implemented **enhanced stormwater permitting** and compliance measures in coordination with the U.S. Environmental Protection Agency Region 4



# Great Smoky Mountains National Park



- **Blotchsided Logperch:** Collected 30 genetic samples from each of the 4 major populations of Blotchsided Logperch (Little River, Holston River, Clinch River, and Toe River). Analyzed these samples to examine within population genetic diversity both to assess potential source populations and determine a goal for genetic diversity within a newly established population.
- **TN Stream Mitigation Program (TSMP) project on Abrams Creek:** Scoped a potential streambank restoration and channel realignment project on Abrams Creek and its tributaries within Cades Cove. Phase I prospectus drafted with recommendations for riparian enhancement, riparian rehabilitation and some channel realignment. Proposed mitigations will be presented to park managers and undergo NEPA compliance review prior to implementation. Phase I would address these issues on many of the tributaries to Abrams Creek within Cades Cove. Once Phase I is complete, Phase II would focus upon potential mitigation's on Abrams Creek through Cades Cove. Abrams Creek and many of its tributaries within Cades Cove have undergone numerous alterations, realignments, channelization's and channel movements over the last century as well as degradation due to unrestricted cattle access to the streams.
- **Brook Trout Restoration:** Anthony Creek and Little Cataloochee Creek Brook Trout populations continue to expand and recolonize the 2.8 km and 4.0 km of stream segments restored in 2017-2018. The successful restoration of Anthony Creek and Little Cataloochee Creek results in a total of 13 GRSM streams restored totaling just over 30 miles (48 km).
- **Smallmouth Bass Mercury Consumption Advisories:** In June 2019, GRSM and TDEC announced Smallmouth Bass consumption advisories for lower Abrams Creek and lower Little River due to elevated levels of mercury in Smallmouth Bass tissue (<https://www.tn.gov/environment/news/2019/6/26/tdec-issues-precautionary-fish-consumption-advisories-for-two-streams-within-the-great-smoky-mountains-national-park.html> ). Other recreational activities on these streams such as kayaking, swimming, wading, and catch-and-release fishing carry no risk from mercury. There is no advisory on trout, which were found to have generally low levels of mercury. See the following link for more info: <https://www.nps.gov/grsm/learn/nature/smallmouth-bass.htm#11/35.5864/-83.8168>



# North Carolina Wildlife Federation

- The NC Wildlife Federation continued to maintain an account and distribute funds for the **Sicklefin Redhorse Restoration Project**.
- The Federation continued to promote the work of LT-NFCP in its quarterly publication, *Wildlife Journal*.

# North Carolina Wildlife Resources Commission

- Completed our **mussel occupancy study** in the Little Tennessee River, where we found several threatened mussel species including Appalachian Elktoe (Federally Endangered and State Endangered), Longsolid (State Endangered), Rainbow (State Threatened), Slippershell (State Endangered), Spike (State Special Concern), TN Clubshell (State Endangered), and Wavy-rayed Lampmussel (State Special Concern). During the occupancy we also found several new records of non-target species including Stonecat Madtom (State Endangered), Hellbender (State Special Concern) and Mudpuppy (State Special Concern) in the Little Tennessee River.
- Found **Appalachian Elktoe for the first time in Burningtown Creek** which added ~5 kilometers of occupied habitat to their limited range.
- **Cheoah River species restoration** continued with translocations of Banded Darter, Greenfin Darter, Fatlips Minnow, Gilt Darter, River Chub, TN Shiner, Tuckasegee Darter, and Wounded Darter (State Special Concern) to the Cheoah River. This work continues to recover the historical biodiversity of the Cheoah River.





# Mainspring Conservation Trust

- **Land acquisition for conservation in the Little Tennessee River watershed:**
  - **Simp Gap:** Mainspring completed this project in April 2019 that conserves 504 acres and protects the view for hikers along the Appalachian Trail.
  - **Hopper House Donation:** 7.5 acres on Betty's Creek in Rabun County that includes a log home built in the late 1840s.
  - **Buck Creek Donation:** 48 acres in Macon County
  - **Mull Creek:** Mainspring purchased the 28 acres through a bargain sale. This Jackson County property contains high quality brook trout habitat.
  - **Tessentee Bottomland Preserve Addition:** The fourth addition to Mainspring's most popular Macon County preserve, this 42-acre farmland is still being leased for cattle and protects the water quality of the Little Tennessee River and Tessentee Creek.
  - **Shut-In Creek/Blackrock:** This massive Jackson County project was completed in partnership with The Conservation Fund. The project conserves 470 acres that was transferred to the Eastern Band of Cherokee Indians and 443 acres to the Town of Sylva to expand its Pinnacle Park.
  - **Baliles Acquisition:** Bordering State of North Carolina Needmore Game Lands and Mainspring lands, this Macon County project in the Cowee Mound conservation node protects approximately 1,200 feet of river frontage along the Little Tennessee River.
  - **Salt Rock Gap:** The U.S. Forest Service purchased this property from Mainspring in March of 2019. In partnership with the Friends of Panthertown, Mainspring bought the 16-acre property adjacent to Panthertown Valley to improve parking at this popular entrance to Panthertown.
  - **Rainbow Springs:** 205-acre conservation easement along the Upper Nantahala River watershed and significant natural area.
  - **Bo Cove:** 192 acres in Jackson County.
  - **Bee Knobs:** The 104-acre Graham County property is adjacent to Mainspring's King Meadows property and, among its many conservation values, protects the viewshed from Hooper Bald and the Cherokee Skyway.
- **Water and Education:**
  - **Jerry Branch & Rabun Gap Nacoochee School:** Mainspring and TVA held a livestaking demonstration and workday with RGNS. Students participated in re-vegetating a small stream along their property.
  - **Bumgarner Branch & Catamount School:** Mainspring continues to partner with the Catamount School on livestake projects. Students setup an experiment to test if livestake length affects survival.
  - **Mussel Reintroduction:** Working with NCWRC, 4 sites were identified in the Cullasaja River and Cartoogechaye Creek as suitable mussel habitat. 1200 juveniles were stocked at these sites in October.
  - **Spotfin Chub Study:** Mainspring completed an annual survey for the federally threatened spotfin chubs in tributaries in the Little Tennessee River. High flows during the spring limited the field samples, but provided data nonetheless. Although spotfin are documented in tributaries, more so during the fall than other times, we are still unsure what triggers this migration and why certain tributaries are used more than others.
  - Nine **snorkeling events** with 142 participants

# Tennessee Wildlife Resources

- TWRA conducted **aquatic education** programs for Carpenter Elementary School in Blount County emphasizing the Little Tennessee River Watershed.
- Educational programs continue in the Tellico River watershed to raise awareness about the occurrence of the pathogen that causes Whirling Disease and help **prevent its spread**.
- **Brook trout restoration** efforts continued in the Tellico River Watershed with deployment of temperature loggers in select streams to evaluate suitability for restoration activities. Monitoring of the Sycamore Creek brook trout restoration project continued.
- TWRA cooperated with TDEC to collect tissue samples for mercury contaminant analysis from black bass in **Chilhowee Reservoir**.
- TWRA has continued to **supply rainbow trout** for Chilhowee and Calderwood reservoirs during the year and has committed to stocking select warmwater species in Chilhowee Reservoir.





# Western Carolina University

- The **Oconaluftee Mussel Project Team** (Tom Martin, WCU; Mike LaVoie & Caleb Hickman, EBCI, and Luke Etchison & Rachael Hoch, NCWRC) received funding to continue work on Phase II of the project from TVA.
- Sierra Benfield completed her field work on Phase 1b in November and will be defending her thesis in early 2020.
- Thesis successfully completed and defended by Rachel Finigan: Finigan, R.E. 2019. **Feasibility study for restoration of freshwater mussels (*Villosa iris* and *Lampsillis fasciola*) in the upper Oconaluftee River in North Carolina**. Master's Thesis, Western Carolina University. Available online: <https://libres.uncg.edu/ir/wcu/f/Finigan2019.pdf>
- Thesis successfully completed and defended by Michelle Ruigrok: Ruigrok, M.S. 2019. **In-situ feasibility study of freshwater mussel reintroduction: survival and growth of the Slippershell (*Alasmidonta viridis*) in the upper Oconaluftee River, NC (Swain Co.)**. Master's Thesis, Western Carolina University. Available online: <http://libres.uncg.edu/ir/wcu/f/Ruigrok2019.pdf>