

Stone Mountain State Park Trout Conservation Effort



Rainbow Trout (*Onchorychus mykiss*)

Sponsored by

**North Carolina State Parks
Stone Mountain Trout Unlimited
Blue Ridge Trout Unlimited**

And Supported by

**North Carolina Wildlife Resources Commission
Nat Greene Fly Fishers
Triangle Fly Fishers
North Carolina Trout Unlimited
National Trout Unlimited**

Trout Enhancement and Protection is a joint multi-year (2013-2018) partnering program to enhance the preservation, protection and management of the wild and native trout in the unique, stand-alone Stone Mountains of North Carolina.

Stone Mountain State Park Trout Effort

As North Carolinians we are extremely fortunate to have a large portion of the Blue Ridge Mountains as a state park. This backbone southern mountain range with numerous cold water mountain streams contains healthy populations of wild and native trout. Stone Mountain State Park preserves, protects and manages over 14,000 acres south of the Blue Ridge Parkway in Wilkes and Alleghany counties which include the pristine headwaters of Middle Prong Roaring River and East Prong Roaring River.

The Trout Enhancement and Protection (TEP) initiative at Stone Mountain State Park is a cooperative project established by The North Carolina Council of Trout Unlimited (NCTU) and Stone Mountain State Park. Other organizations with vital participation in the initiative include but are not limited to the North Carolina Wildlife Resources Commission (NCWRC) and other Trout Unlimited (TU) chapters as well as regional TU national conservation staff.

The planning group for TEP initiative includes but is not limited to the following leaders:

Alen Baker, RRTU, NCTU Vice-Chair	alenandscottie@aol.com
Doug Besler, NCWRC	doug.besler@ncwildlife.org
Marshall Ellis, NC State Parks	marshall.ellis@ncparks.gov
Dick Everhart, Stone Mountain TU	jreverhart@triad.rr.com
David Goodfred, NCWRC	david.goodfred@ncwildlife.org
Kevin Hining, NCWRC	kevin.hining@ncwildlife.org
Kin Hodges, NCWRC	kin.hodges@ncwildlife.org
Edward Jones, Triangle TU	emt.trout@gmail.com
Jim Mabrey, RRTU, NCTU Chair	rrtujim@gmail.com
Jacob (Jake) Rash, NCWRC (828) 659-3324x225	jacob.rash@ncwildlife.org
Jeff Payne, Stone Mountain TU	jeff@tristateangler.com
Bob Pearson, Stone Mountain TU	rhpearson1@roadrunner.com
Janet Pearson, Superintendent, SMSP NCDPR (336) 957-8185	janet.pearson@ncparks.gov
Jayne Sommer, Blue Ridge TU	jsommer@triad.rr.com
Chris Wood, NCWRC	chris.wood@ncwildlife.org

The above list may change from time to time to include others involved in the planning and direction of the initiative. In addition, NCTU has established a Conservation Committee that will encourage various chapters to lead projects or encourage member volunteers to participate:

Alen Baker, NCTU Conservation Committee Chair (704) 507-6191	
Dick Everhart, Stone Mountain TU (336) 874-3114	
Damon Hearne, TU (SE Region Staff)	dhearne@tu.org

Edward Jones, Triangle TU	
Nick Mermigas, At-Large TU	nmermigas@bbandt.com
Tim Ramsey, RRTU	tramsey@wardtank.com
Allan Reinhardt, Tablerock TU	
John Rich, Pisgah TU	cosw@netzero.net
(803) 767-9006	
Jayne Sommer, Blue Ridge TU	
(336) 408-5848	
Eric Woodard, Foothills TU	ericw@bellsouth.net
?, Land O'Sky TU	
Adam Irving, Nat Greene TU	airing@bellsouth.net
Thurman Grove, Cataloochee TU	thurmangrove@earthlink.net
D. Henry, Cataloochee TU	dhenry1025@gmail.com
?, Tuckasegee TU	
?, Northwestern TU	

The planning group has established four (4) objectives to complete within a 3-5 year timeframe. Actual rehabilitation of a stream to protect native trout depends on a confidence level that the funding and appropriate permits may be obtained. In the cases where the headwaters originate on adjoining private property, cooperation with the landowner is paramount. *In some cases there are plans dating back to 1985 involving the purchase of parcels adjoining the park. The efforts by Trout Unlimited volunteers will be at the direction of park staff and only involve contacting and working with landowners when the park staff deems appropriate.* In the cases where the headwaters originate on adjoining federally owned property (Blue Ridge Parkway), partnering with National Parks is essential.

Note: Appropriate stream permits are required for any work that is to occur in the stream and potentially within Riparian zones. Erosion abatement work beyond the Riparian zones may require county (local) construction permits.

TEP Initiative Objectives:

1. Identify, prioritize and complete coldwater conservation projects within Stone Mountain State Park that are defined while executing the Trout Enhancement and Protect initiative.
2. Develop a comprehensive profile of wild and native trout populations within Stone Mountain State Park to better leverage the pilot Native Fish Conservation Area designation of Roaring River and Mitchell River headwater basins.
3. Provide a general education to anglers and the general public in regards to wild and native trout populations within Stone Mountain State Park, Doughton National Park, Thurman-Chatham Gameland and other near-by trout streams (Roaring River or Mitchell River basins).

4. Rehabilitate one or more selected headwater tributaries flowing into Stone Mountain State Park to protect wild or native trout if deemed appropriate by state-of-the-art scientific methods.

The organizations involved will accomplish the objectives with a simple three (3) phase approach. Any project identified during the Preparation Phase that is given a high priority and can be fully defined will be scheduled and coordinated as soon as feasible. This means the Project Phase timeline will overlap the Preparation Phase with ongoing project efforts occurring even while still working to fully complete the Preparation Phase. Likewise, any completed project will move into the Follow-up Phase such that an appropriate evaluation of the results can occur on a timely basis.

TEP Initiative Phases:

Preparation Phase

- ✓ *As an ongoing effort during this phase, SMSP, TU, and NCWRC will jointly develop a prioritized list of collateral projects; then as each are fully defined the projects are launched (see Collateral Projects Appendix).*
- ✓ NCTU drafts and Planning Group establishes the TEP initiative plan and schedules future meetings (second meeting draft, third meeting working document)
- ✓ NCWRC provides data gathering equipment specifications, creel card and native trout genetic studies materials (*see South Mountain SP Conservation Effort*)
- ✓ TU provides Embrace-A-Stream and other grant materials
- ✓ Planning Group develops communications, PR and education materials/plans
- ✓ TU pursues grants or performs fundraising for data gathering equipment and for other estimated costs not covered as part of SMSP operations
- ✓ Each organization promotes and communicates the TEP initiative
- ✓ Planning Group identifies potential conservation/habitat improvement projects that enhance and support wild and native trout. Given the Parks location and the origin its waters, this will be the primary focus of conservation activities, and rehabilitation opportunities will arise if appropriate.
- ✓ Planning Group develops list of candidate streams for potential conservation efforts
- ✓ SMSP operates a check-out/check-in for data gathering equipment and collection of creel cards from TU volunteers
- ✓ SMSP volunteer coordinator provides data gathering training for TU volunteers
- ✓ TU volunteers visits candidate streams and gather preliminary data such as GPS locations of natural barriers and temperature data.
- ✓ Planning Group refines a prioritized shortlist of streams for conservation/habitat improvement projects
- ✓ Planning Group refines a prioritized shortlist of headwater streams for restoration
- ✓ NCWRC completes genetic studies (est. 2 year timeline remaining)
- ✓ NCWRC finalizes data for shortlist

- ✓ NCWRC and SMSP determine appropriateness of stream rehabilitation activities for waters flowing into SMSP
- ✓ If rehabilitation efforts are appropriate, Planning Group makes the “go/no-go” for one or more rehabilitation projects
- ✓ Each organization makes final preparations according to detail plans

Projects Phase

- *TU volunteers completes each collateral project*
- For any rehabilitation or enhancement project, the Planning Group will select the stream, plan the logistics, acquire needed resources and schedule the joint efforts of NCWRC, SMSP and TU volunteers
- Each organization promotes and communicates the progress of the TEP initiative as appropriate
- For any rehabilitation, NCWRC, SMSP and TU volunteers completes the field work
- Each organization promotes and communicates the each project completion of the TEP initiative as appropriate

Follow-up Phase

- ❖ *TU volunteers performs follow-up efforts as defined with each completed project*
- ❖ For any rehabilitation, NCWRC, SMSP and TU volunteers will perform planned follow-ups as defined in the project.
- ❖ Planning Group reviews and documents lessons learned and noteworthy conclusions of the TEP initiative for use in comparable future projects
- ❖ Each organization promotes and communicates the results of the TEP initiative as appropriate

The above overview of the TEP initiative presented in phases gives a summary approach of the key actions that will be performed by the joint efforts of NCWRC, SMSP and TU volunteers. A more detailed plan is presented as an appendix. The detail plan will be the working document that is used to plan, manage, adjust and re-plan the TEP initiative.



The North Carolina Council of Trout Unlimited is a non-profit, conservation sub-organization of Trout Unlimited. The state council is an assembly of representatives of each chapter within the state which operates various committees to coordinate statewide joint efforts by the chapters. <Jim to review and edit>

Chapters near and around the park may join in the effort including but not limited to Stone Mountain, Blue Ridge, Nat Greene, Triangle, Northwestern and Dogwood chapters.



<need brief description>

<need NCWRC logo>

“The North Carolina Wildlife Resources Commission (NCWRC) is the state government agency created by the General Assembly in 1947 to conserve and sustain the state’s fish and wildlife resources through research, scientific management, wise use, and public input. The NCWRC is responsible for the management of the State’s freshwater fishery resources, including all non-game aquatic fauna and their habitats.”



Trout Unlimited is a non-profit, national conservation organization whose mission is to Conserve, Protect and Restore Coldwater Resources. <Damon to review and edit>

Appendix A – Stream Rehabilitation Initiative Detail Plan (working document)

TEP Initiative Preparation Phase

	Task	Status	Timeframe	Lead	Remarks
A	<i>As an ongoing effort during this phase, SMSP and TU will jointly develop a prioritized list of collateral projects; then as each are fully defined the projects are launched (see Collateral Projects Appendix).</i>	Ongoing	2013-2019	SMSP/SMTU/BRTU	NCTU (Stone Mtn is the closest chapter and may take the lead)
B	TU drafts and Planning Group establishes the TEP initiative plan and schedules future meetings		2013-2019	SMSP/SMTU/BRTU	
B1	1 st Meeting – Planning Group Formation	TBS	Mar 2013	SMSP	
B2	Draft TEP Initiative Plan	Completed	Feb 2013	Alen Baker	
B3	Circulate Plan for edits and more details	Underway	Feb-Mar 2013	Planning Group	Email Alen Baker
B4	2 nd Meeting – Draft Review/Refinement	Planned	June 13, 2013	SMSP/SMTU/BRTU	
Bn	(quarterly meetings)		Mar,Jun,Sep,Dec	Planning Group	Suggested
C1	NCWRC provides data gathering equipment specifications	Completed	Dec-Jan	NCWRC	Garman Etrex 10 ECO Testr pH2
C2	NCWRC provides data gathering Angler's Diary card	Completed	Jan 2013	Jacob Rash	Used SMB/MK
C4	Delay Use of Angler's Diary until completion of current Wild stream usage study is completed			Planning Group	
C5	Wild stream usage study	Underway	Apr-Oct 2013	NCWRC	
D1	TU provides Embrace-A-Stream grant materials	Assigned	Jan 2014	Damon Hearne	
D2	TU provides other grant materials	Assigned		Damon Hearne	
E1	Planning Group develops communications materials/plans				
E2	Planning Group develops PR materials/plans			NC Parks PR Dept	
E3	Planning Group develops education materials/plans				
E3a	Kiosk updates				
E3b	Pamphlets/brochures				
E3c	TU Chapter meetings/newsletters/websites		Feb 2014		
E4	SMSP/SMTU/BRTU develops TU Volunteer Training materials/plans		Mar 2014	SMSP Volunteer Coordinator	
F	TU pursues grants or performs fundraising for data gathering equipment and for other estimated costs not covered as part of SMSP operations	Planned		Damon Hearne Alen Baker	
G	Each organization promotes and communicates the TEP initiative		2014-2015		
G1	SMTU, BRTU, NCTU, TU communications			Alen Baker Jim Mabrey Damon Hearne	
	SMSP communications			<superintendent>	
	NCWRC communications			Jacob Rash	
H	Planning Group plans potential conservation/habitat improvement projects that enhance and support wild and native trout				Big Sandy Ck Stone Mtn Ck Rich Mtn Ck

I	Planning Group develops list of candidate headwater streams for potential rehabilitation <i>Note: Criteria include locating a natural barrier that can effectively protect a restored native trout population. A higher altitude and the presence of trout will contribute to a higher priority for eventual stream selection.</i>	Planned	2014	SMSP	Appendix D (draft list)
J	SMSP operates a check-out/check-in for data gathering equipment and collection of creel cards from TU volunteers	Planned	Mar 2014 desired	SMSP	
J1	Acquire data gathering equipment	Ordered	Mar 2013		Two (2) sets \$350
J2	Print Inventory of Angler's Diary cards	Completed	Early-Mar 2013		
J3	Setup check-out/check-in "station"	Planned			
J4	Review and adjust processes/data gathering				
K1	TU volunteers recruited for training		Jan-Feb 2014	SMTU, BRTU	"Treasure Hunt"
K2	SMSP volunteer coordinator provides data gathering training for TU volunteers		Early-Mar 2014		Qualified for data accurate collection
L	TU volunteers visits candidate streams and gather preliminary data		From Mar 2013 forward	TU volunteers	Continues as a follow-up task
L1	Temperature, pH and Turbidity monitoring				
L2	Barrier mapping (first cut GPS locations with basic data)				Detail survey based on need
L3	SMSP Angler's Diary Card				
L4	Angler reporting/diary				
M	Planning Group refines a prioritized shortlist of headwater streams for rehabilitation		2014-2015	SMSP	
N	NCWRC completes genetic studies (est. 2 year timeline remaining)		2015	NCWRC	Est. 2 year timeline remaining as of 11/6/12
O	NCWRC finalizes data for shortlist		2015		
P	Planning Group makes the "go/no-go" for one or more rehabilitation projects		2015		DECISION POINT
Q	Planning Group develops detail plans for one or more stream rehabilitations		2015		Optimistic timeline
R	Each organization makes final preparations according to detail plans		2015		Detail TEP planning
R1	SMSP plans/prepares stream access route			SMSP	
R2	NCWRC and SMSP arranges for equipment and staff			SMSP NCWRC	
R3	SMTU/BRTU arranges for individual equipment			SMTU/BRTU	
R4	NCWRC/SMSP/BRTU sets date(s) and rain date(s)			NCWRC/SMSP SMTU/BRTU	
R5	NCWRC/SMTU/BRTU communicates project date(s) and rain date(s)			NCWRC SMTU/BRTU	
R6	Arrange onsite refreshments				
R7	Arrange onsite first aid/emergency plans			SMSP	
R8	SMTU/BRTU coordinates travel/stream access			SMTU/BRTU	
R9	SMSP/TU Volunteers prepares route to move existing, nonnative trout			SMSP staff TU Volunteers	
R10	NCWRC/TU Volunteers prepares route from native trout source stream			NCWRC staff TU Volunteers	

	(other preparation tasks)				
	(repeat for any additional streams planned for brook trout restoration)				

TER Initiative Project Phase

	Task	Status	Timeframe	Lead	Remarks
	NCWRC Wild Stream Usage Project	Underway	Apr-Oct, 2013	NCWRC	Independent baseline data acquisition.
	<i>TU volunteers completes each collateral project</i>				
	NCWRC Stream Sampling Project	Underway	Mar-Jul, 2013	NCWRC	Work dates comm..
	SMSP Hemlock Injection Project	Underway	Apr-May, 2013	SMSP	Work dates comm..
	NFCA Project		2014		Pilot
	Gamefish (Trout) Study and Analysis Project		2014		
	Big Sandy Silt Load Removal Project	Researching	2015		
	Bullhead Creek Disposition Project	Researching	2015		Flood damage 1979. Hurricane Hugo damage 1989.
	For any restoration, the Planning Group will select the stream, plan the logistics, acquire needed resources and schedule the joint efforts of NCWRC, SMSP and TU volunteers		2016		
	Each organization promotes and communicates the progress of the TEP initiative as appropriate		2016		
	For any restoration, NCWRC, SMSP and TU volunteers completes field work (both the removal of wild, nonnative trout and the restoration of native trout)		2016		
	Each organization promotes and communicates the each project completion of the TEP initiative as appropriate		2016		

TER Initiative Follow-up Phase

	Task	Status	Timeframe	Lead	Remarks
	<i>TU volunteers performs follow-up efforts as defined with each completed project</i>				
	NCWRC Stream Sampling Project		2013		Pilot
	SMSP Hemlock Injection Project		2013		
			2014		
	NFCA Project		2014		
	Gamefish (Trout) Study and Analysis Project		2015		
			2015		
	Big Sandy Silt Load Removal Project		2016		
	Bullhead Creek Disposition Project		2016		
	For any restoration, NCWRC, SMSP and				

	TU volunteers will perform planned follow-ups as defined in the project.		2017, 2018		
	NCWRC follow-up		2017, 2018		
	SMSP follow-up		2017, 2018		
	SMTU/BRTU follow-up		2017, 2018		
	Planning Group reviews and documents lessons learned and noteworthy conclusions of the TEP initiative for use in comparable future projects		2017		
	Each organization promotes and communicates the results of the TEP initiative as appropriate		2017		
	SMSP promotion and communications				
	SMTU/BRTU/NCTU/TU promotion and communications				
	NCWRC promotion and communications				

Appendix B – Collateral Projects

Projects currently underway with priority:

- NCWRC Wild Stream Usage Study
- NCWRC Stream Sampling Project
- Stone Mountain State Park Hemlock Injection Project
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	Task	Status	Timeframe	Lead	Remarks
	NCWRC Wild Stream Usage Study	Underway	Apr-Oct, 2013	NCWRC	Independent baseline data acquisition.
	(sites primarily where there are single entry points to the stream)				Project entry is for volunteer awareness only.

NCWRC Stream Sampling Project

NCWRC is currently updating stream data with new measurements and tissue samples. Volunteers are needed to help manage the sample batches of fish in buckets including carrying to the measurement point, handling, measuring and recording data, then returning fish to the stream.

Dates currently planned to do trout surveys, from now through July. Kevin Hining will provide dates for later in the summer and fall as the work progresses. For most dates, if someone wants to assist me, Kevin Hining can change the survey around to fit a location they might be interested in (Stone Mt. State Park, Ashe County, Watauga, etc.), as well as the intensity (close to a road, 2-3 mile hike, etc.). A number of volunteers are needed on each day of stream sampling. Call or email Kevin Hining with any questions.

Contact Kevin Hining, District 7 Fisheries Biologist I, NCWRC, AFS Certified Fisheries Professional keving.hining@ncwildlife.org Fleetwood, NC 28626, 336-877-1087

	Task	Status	Timeframe	Lead	Remarks
	NCWRC Stream Sampling Project				
Dates	(sites where wild trout)		Mar 18, 19	NCWRC	
A			Apr 10, 15, 24	NCWRC	
B			May 7, 15, 29	NCWRC	
C			Jun 10, 11	NCWRC	
D			Jul 1, 2, 15, 16	NCWRC	
E					
F					
G					

Stone Mountain Hemlock Injection Project

Hemlock trees with less than 50% dead branches that are providing stream canopy will be treated to save the tree or at least delay the loss of the tree to protect stream temperatures as much as possible.

Each work day will begin at 8:30 am at the Visitor Center. Each participant should provide their own eye protection, lunch and water. Please wear appropriate footwear for hiking. Staff will provide disposable gloves and all equipment necessary to complete the chemical injection. If any volunteer is proficient in using a GPS and would like to bring their own it would be extremely helpful. The folks that are interested in volunteering need to fill out our volunteer application and bring it with them the first day they volunteer. All volunteers need to send me an email to let me know which dates they are available to participate. This way I will have a way to contact them in case of a cancellation due to rain or for further instructions. If you have any questions please feel free to send me an email.

Contact Janet W. Pearson, Park Superintendent directly via eMail janet.pearson@ncparks.gov Stone Mountain State Park, 3042 Frank Parkway, Roaring Gap, NC 28668, Office:336-957-8185

	Task	Status	Timeframe	Lead	Remarks
	SMSP Hemlock Injection Project				
Dates	(sites where injection may save or delay the loss of hemlock tree canopy)				
A			Apr 24	SMSP	
B			Apr 27	SMSP	
C			May 1	SMSP	
D			May 4	SMSP	
E			May 9	SMSP	
F			May 15	SMSP	

Projects oriented toward riparian zone stabilization:

- Erosion control via bank reinforcement using willow shoots, willow weaving and natural materials such as rocks, logs and bio degradable matting
- Canopy and stream bank native vegetation plantings
- Tributary silt and sediment source reduction/elimination

	Task	Status	Timeframe	Lead	Remarks
	Stream Bank Erosion Abatement Project				
Site	(sites where erosion impacts the stream)				
A					
B					
C					
D					
E					
F					
G					
H					
I					
J					
K					
	(Plan a separate project for each site)				
1	Determine Eco-Safe Source of Rocks				
2	Secure tools based on expected number of volunteers: shovels,racks,wheelbarrows,etc.				
3	Coordinate work dates, rain dates w/ SMSP				
4	Communicate project/dates across NCTU				
5	Pre-cut Willow chutes and keep in water				
6	Arrange for refreshments/lunch or BYOF				
7	Place worksite signage on each workday				
8	Execute workdays until work completed				
9	SMSP completion sign-off				
10	Communicate project completion				

Projects oriented toward trail stabilization to curtail run-off:

- Run-off re-direction and management
- Improving horse trail and park vehicle stream crossings

	Task	Status	Timeframe	Lead	Remarks
	Trail Repair or Re-Route Project				
	(sites where run-off impacts the stream)				
Site					
A					
B					
C					
D					
E					
F					
G					

H					
I					
J					
K					
	(Plan a separate project for each site)				
1	Determine Eco-Safe Source of Rocks				
2	Secure tools based on expected number of volunteers: shovels,racks,wheelbarrows,etc.				
3	Coordinate work dates, rain dates w/ SMSP				
4	Communicate project/dates across NCTU				
5	Secure materials for trail construction/repair				
6	Arrange for refreshments/lunch or BYOF				
7	Place worksite signage on each workday				
8	Execute workdays until work completed				
9	SMSP completion sign-off				
10	Communicate project completion				

“Kids dam” removal in high use sites on Roaring River and Stone Mountain Creek (picnic area):

	Task	Status	Timeframe	Lead	Remarks
	Annual Rock Dam Removal Project				
1	Coordinate work date, rain date w/ SMSP				
2	Schedule annual Streamside on Jacob Fork				
3	Communicate project/dates to TU Chapter				
4	Arrange for refreshments/lunch or BYOF				
5	Execute workdays until work completed				
6	SMSP completion sign-off				
7	Communicate project completion				
8	Allow time for volunteers to fish!				

Assist NCWRC with stocking and other projects in need of volunteer labor

	Monthly Stocking Assistance Project				
1	(Mar, Apr, May, Jul, Oct and Nov)				
2	Coordinate dates w/ NCWRC hatchery				
3	Communicate each date/time to TU Chapter				
4	Arrange for refreshments/lunch or BYOF				
5	Allow time for volunteers to fish!				

Appendix C – Sub-Projects

This section details portions of the TEP Initiative Project. First and foremost is a complete survey of the streams within the Stone Mountain State Park, Doughton National Park, Thurman-Chatham and other trout streams which has public access. Surveying a stream on private property required the permission of the landowner prior to crossing the property boundary and accessing the stream.

Gamefish (Trout) Population Study and Analysis Project

A comprehensive sampling of all “fishable tributary” headwaters by volunteer TU members and friends is designed to discover any native trout populations as well as confirm any non-native wild trout populations in all the streams. Although specific streams have been assigned to specific chapters by general agreement, any volunteer may fish any stream in the Roaring River or Mitchell River basins and complete an Angler’s Diary Card to contribute to the study of Stone Mountain gamefish (trout) populations.

In addition to completing a trout species/catch summary, the study includes measuring pH and obtaining a GPS coordinate for each natural barrier greater than 3 feet high on the stream along with the height of the barrier. During the months of June, July, August and September temperature readings at 10am, Noon, 2pm and 4pm are expected if on the stream at any of these times. A GPS coordinate or identifiable landmark description may be used to denote the following: Any bank erosion is to be reported. Any trash is to be carried out if possible or reported. Any stream jams that impede the natural movement of trout upstream and downstream are to be reported. Finally, note each “fishable tributary” encountered on the stream separately whether named or un-named on maps.

A GPS Unit, a ECOTESTR PH1 or 2 pH/thermometer Unit, Ruler, Angler’s Diary Cards and Pen are to be carried during the trek to the stream. The Stone Mountain State Park office will have this “creel study kit” available for check-out/check-in during park hours. TU members of the NCTU Conservation Committee are encouraged to acquire the (NCWRC specified) items and create one or more “creel study kits” for their chapter’s convenient use as well. Angler’s Diary Cards are to be turned-in at the SMSP office or mailed to the SMSP office when necessary. An angler’s diary is encouraged for capturing anecdotal information about the streams visited and any observations to be shared.

The information gathered by volunteers will be analyzed by NCWRC for species follow-up work and by the TEP Planning Group for future conservation projects. The Gamefish (Trout) Population Study and Analysis Project is intended to fun for the volunteer. The data and information collected will provide a comprehensive view of the coldwater conservation profile of the Roaring River or Mitchell River basins and fundamental for future projects.

The following is a (working document) project task list to guide the progress the survey of all potential trout streams in the Roaring River or Mitchell River basins followed by the Angler’s Diary Card with instructions:

	Task	Status	Timeframe	Lead	Remarks
	Gamefish (Trout) Study and Analysis Project				
	Pre-Requisite Tasks				
	NCWRC Wild Stream Usage Project	Underway	Apr-Oct, 2013	NCWRC	Independent baseline data acquisition.
J	SMSP operates a check-out/check-in for data gathering equipment and collection of creel cards from TU volunteers	Planned	Apr 2013 desired Mid-Jun 2013 latest	SMSP	
J1	Acquire data gathering equipment		Mar 2013		At least two set
J2	Print Inventory of Angler's Diary cards		Early-Mar 2013		
J3	Setup check-out/check-in "station"		Late-Mar 2013		
J4	Review and adjust processes/data gathering		Jul, Aug, Sep 2013		
	Gamefish (Trout) Study of Roaring River or Mitchell River basins			NCTU (examples)	
1	Complete Angler's Diary Cards				
	Roaring River			SMTU	
	West Prong Roaring River			Blue Ridge TU	
	Middle Prong Roaring River			Blue Ridge TU	
	Basin Creek (DNP)				
	Cove Creek (DNP)				
	Lovelace Creek				
	Harris Creek				
	East Prong Roaring River (SMSP)			SMTU	
	Garden Creek (SMSP)				
	Widows Creek (SMSP)				
	Bullhead Creek (SMSP)				
	Rich Mountain Creek (SMSP)				
	Stone Mountain Creek (SMSP)				
	Big Sandy Creek (SMSP)				
	Little Sandy Creek				
	Mitchell River			Triangle TU	
				Triangle TU	
				Blue Ridge TU	
				Nat Greene TU	
				Dogwood TU	
				RRTU	
				Tablerock TU	
				Northwestern TU	
2	Analysis			NCWRC	
3	Creek Follow-up and Re-Direction				
4	Draft Report			NCWRC	
5	Final Report			NCWRC	
6	Report Communications				
7	Project Review and Follow-up				
8	Communicate Project Completion				

Stream health monitoring and analysis during drought periods (these activities to improve stream health are critical and will be a focal point of this effort.). This project is seasonally most likely during the “dog days” of summer and possibly into the fall. Volunteers may find little conflict between project work and fishing as very clear, low-water on hot days are most challenging for trout fishing anyway. However, during a drought, the more days with temperature measurements the more complete the analysis of the affects of drought.

	Task	Status	Timeframe	Lead	Remarks
	Drought Monitoring and Analysis				
	(take reading at 10am, Noon, 2pm and 4pm)				
	Temperature Measurements on WP Roaring				
	Temperature Measurements on MP Roaring				
	Temperature Measurements on EP Roaring				
	Temperature Measurements on Mitchell				
	Add tributary sites that have sections of open canopy and southern exposures				
	Add a measurement site upstream if temperatures reach 80 degrees				
	Add a measurement site downstream if temperatures remain below 75 degrees				
	Record Hi, Avg. and Low Temperatures				
1	Correlate Stream Temp vs. Air Temp(s)				
2	Complete an Annual Report				
3	Communicate results w/ SMSP, NCWRC				

Stream health monitoring and analysis during flooding periods (these activities to improve stream health are critical and will be a focal point of this effort.). This project is not scheduled but rather “on-demand”. Volunteers must monitor the weather reports for heavy rains and predicted flooding in the South Mountains and be prepared to execute the task upon short notice.

	Task	Status	Timeframe	Lead	Remarks
	Flooding Monitoring and Analysis				
	(use a turbidity disc instrument for accuracy)				
	Check WP Roaring for Trubidity				
	Check MP Roaring for Turbidity				
	Check EP Roaring for Turbidity				
	Check Mitchell for Turbidity				
	Add tributary sites that have turbidity				
	Narrow-down and pin-point run-off sources				
	Record South Mountain Rainfall for each set of turbidity measurements				
1	Correlate Stream Turbidity vs. Rainfall				
2	Complete an Annual Report				
3	Communicate results w/ SMSP, NCWRC				

NCTU
Angler's Diary, Stream Temp/pH and Turbidity
Instructions

1. Fill out a different card each time you go fishing. It is important that you fill out a card even on days when no fish were caught.
2. Fill in the TU Chapter, date of the fishing trip (mm/dd/yyyy), your name, e-Mail address and phone number.
3. Record the stream or "fishable tributary" name (Body of Water) where you fished (Jacob Fork DH, Shiny Creek, etc.) and information about put-in and take-out points (list times and locations for each). If you do not know the name enter the GPS coordinate or describe how to locate and access the stream or "fishable tributary".
4. Record the number of anglers in your party fishing.
5. Record the total number of hours (to the nearest 1/4 hours) that were fished.
6. Please fill in the appropriate data within the table for all fish caught (enter length to the nearest 1/4 inch). **If no fish were caught, enter o (zero) in the table for each species sought that was not caught.**
7. Continue recording information for your trip on an additional card if you fill all the data boxes on your original form. Write **Continuation of DATE Trip** in the Body of Water section on the next form. For example: Body of Water Continuation of 10/31/2013 Trip.
8. Use the Fish Notes column to note disease, deformities, etc. The Angler's Remarks/Observation section is a place for information of interest to you or the biologist. In addition, use this section to record the number of fish caught on days when the catch is high and it is not feasible to measure each individual fish.
9. If more than one diary keeper are fishing together, each of you fill out a card as if you were fishing alone (enter "1" for number fishing and record only the fish that you caught). Do not record the same fish in more than one diary.
10. While fishing, measure the height (from the lower pool surface water level to the upper pool surface level in inches) of any natural barriers encountered. Record the GPS coordinate and height of the natural barrier if 36 inches or greater in height.
11. While fishing, measure and record the stream temperature morning (ideally 10am), afternoon (ideally 1pm) and evening (ideally 4pm). This is most important from **June through September**.
12. While fishing, at any opportunity measure and record the stream pH with the GPS point.
13. During or immediately following rain measure and record the stream turbidity with the GPS point. Turbidity is judged in degrees by observation as **Clear (0), Tinged (1), Dingy (2), Milky (3) or Muddy (4)**. If time permits, seek out the source of Milky or Muddy water and note the point of erosion run-off.
14. A GPS coordinate or identifiable landmark description may be used to denote the following:
 - a. Any bank erosion is to be reported.
 - b. Any trash is to be carried out if possible or reported.
 - c. Any stream jams that impede the natural movement of trout upstream-downstream are to be reported.
 - d. Any point source of milky or muddy erosion run-off.

Note each "fishable tributary" encountered on the stream separately whether named or un-named on maps.

Check-in equipment check-out and turn-in your completed Angler's Diary card(s) at the South Mountain State Park office. If you are using chapter equipment, return as instructed and (either turn-in or) mail your Angler's Diary card(s) to:

Stone Mountain State Park
Attn: SMSP TEP Initiative
3042 Frank Parkway
Roaring Gap, NC 28668
Phone: (336) 957-8185

Note: Instructions numbers are designated for many of the enties
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NCTU Rev. #3

NCTU

Stream Temp/pH
Stream Turbidity

2 TU Chapter _____ Date _____
Angler _____ Phone _____
e-Mail _____
Body of Water _____ 3

Measurement Sites (GPS coordinates in decimal degrees, Measurements) 11,12,13

Morning	Afternoon	Evening
_____.____ pH (GPS coord.) _____ degrees _____ turbidity	_____.____ pH _____ degrees _____ turbidity	_____.____ pH _____ degrees _____ turbidity
_____.____ pH _____ degrees _____ turbidity	_____.____ pH _____ degrees _____ turbidity	_____.____ pH _____ degrees _____ turbidity
_____.____ pH _____ degrees _____ turbidity	_____.____ pH _____ degrees _____ turbidity	_____.____ pH _____ degrees _____ turbidity
_____.____ pH _____ degrees _____ turbidity	_____.____ pH _____ degrees _____ turbidity	_____.____ pH _____ degrees _____ turbidity
_____.____ pH _____ degrees _____ turbidity	_____.____ pH _____ degrees _____ turbidity	_____.____ pH _____ degrees _____ turbidity

14
Bank Erosion _____

Trash/Jams _____

Appendix D - Potential Conservation Projects for NCTU Chapters

Sedimentation Abatement Projects

- Erosion control via bank reinforcement using willow shoots, willow weaving and natural materials such as rocks, logs and bio degradable matting
- Tributary silt and sediment source reduction/elimination
- Run-off re-direction and management
- Re-establishing riparian zones from livestock overgrazing
- Developing alternate livestock watering capabilities with landowners
- Improving livestock and vehicle stream crossings
- Stream health monitoring and analysis during flooding and drought periods (these activities to improve stream health are critical and will be the focal point of this effort.)

Habitat Restoration Projects

- Stream debris jams clean-up and removal of primarily man-made objects and/or natural materials that obstruct flows or decays to a level that robs oxygen from the stream (the input of woody debris is a natural process that can diversify aquatic habitats, so removal of such materials should be done with ample consideration and under the supervision of certified stream hydrologists. Any alterations to in-stream habitats will require the proper permitting and care to protect and enhance natural hydrologic processes)
- Canopy and stream bank native vegetation plantings
- Marking and monitoring stream protection zones
- “Kids dam” removal in high use sites on trout streams
- Small irrigation dam removal and replacement with rock sills
- Irrigation canals, culverts and water intake screening to block unwanted fish movement
- Engineered structures and de-channelization
- Structural mitigation of shallow, wide stream channels with total channel width-to-depth greater than 10 (Careful consideration should be given to stream habitat manipulation. This field has advanced in recent years; thus, technical experts will be consulted and employed)
- Invasive aquatic and riparian plant setback/elimination via multi-pass eco-approved treatments
- Culvert replacements that provide stream-beds and free movement of trout
- Stream habitat mapping and analysis for improvement projects planning

Species Protection Projects

- Southern Appalachian Brook Trout restoration via multi-pass electroshock removal and relocation of an existing, nonnative trout population (NCWRC Aquatic Wildlife Diversity staff would be the lead for any effort associated with non-game fishes in public waters. If a true “invasive” was present NCWRC would work to control or eliminate the aquatic nuisance species - elimination by eco-approved treatments)

- Private tributary “owner voluntary closures to fishing” for limited periods of time (not a regulatory change)
- Stream Adoption with member monitoring and reporting
- Establishing Species Conservation Area(s)
- Distribution work in the park – collect data on all trout, focus sampling on brook trout - line sampling via TU and shocking survey via SMSP/NCWRC; TU assist
- Mapping of stream resources – identify priorities and problem areas

Stream Access Projects

- Trail maintenance with trash and debris clean-up
- Parking maintenance with trash and debris clean-up
- Replace fencing with angler/wildlife friendly riparian fencing
- Private access via permission process agreements and signage
- Assist NCWRC with stocking and other projects in need of volunteer labor

**Appendix E – List of Coldwater Tributaries in Roaring River and Mitchell River
(with approximate elevation ranges)**

West Prong Roaring River

Middle Prong Roaring River

Pike Creek (TCGL)
Boundary Line Pond (TCGL)
Basin Creek (DNP)
Cove Creek (DNP)
Lovelace Creek
Harris Creek (SMSP)

East Prong Roaring River (Hatchery Supported)

East Prong Roaring River (SMSP)

Garden Creek (SMSP)
Widows Creek (SMSP)
Bullhead Creek (SMSP)
Rich Mountain Creek (SMSP)
Rich Mountain Creek (headwaters)
Stone Mountain Creek (SMSP)
Stone Mountain Creek (headwaters)
Big Sandy Creek (SMSP)
Big Sandy Creek (headwaters)
Little Sandy Creek

Mitchell River

We have been fortunate to have long-standing relationships with Stone Mountain State Park and Trout Unlimited. Thus, we are appreciative of the efforts to conserve the coldwater habitats and organisms of Stone Mountain State Park and the opportunity to continue to work with our partners to achieve common goals.