Rappahannock Trout Restoration Project Meeting at Shenandoah National Park (SNP)

Monday April 5, 2010

Attending: Jeb Wofford, Biologist, SNP; Beverly Hunter, RappFLOW; BJ Valentine, RappFLOW; Don Loock, PEC; Nat Gillespie, Trout Unlimited; Marshall Jones, Smithsonian Conservation Biology Institute (formerly CRC)

The primary purpose of this meeting was to identify biological (~~acquatic~~aquatic) and water quality data available from SNP that may be useful in formulating and monitoring progress of the trout habitat restoration program in Rappahannock County. We also identified current studies that may be of future interest or utility. Thirdly we discussed placement of water temperature continuous monitoring data logging devices, both within/by the SNP and on private property by RappFLOW and other entities.

A. Data available

For each of the three major streams under consideration (Hughes, Hazel, North and South Fork of Thornton) and for other major streams that enter into Rappahannock County (e.g. Rush, Jordan, Rappahannock), the SNP has been collecting aquatics data at several georeferenced points within the SNP boundaries since about 1985. We can obtain those point shapefiles from Jeb. Nat suggests adding elevation data for the points which Bev agreed to do.

For some of these points the data collection has been one time annually, and for other points the collection has been occasional.

The data are basically of two types: 1) fish species presence/absence or species population; and 2) macroinvertebrate sampling.

About 20 different fish species, including non-game fish, ~~-~~are included in the studies.

The macroinvertebrate studies are annual in the spring, and the fish studies are typically in late ~~July~~May through early ~~/~~August.

The only water quality data are spot measurements of water temperature, pH, discharge, conductivity, and TDS~~s~~ specifically associated with those ~~acquatics~~aquatics samples~~, and pH in some studies (we did not discuss this in depth). There have been no continuous monitorings of any water quality parameter in any stream~~In Rappahannock county, some weekly and episodic water quality data is available for the Piney River and quarterly for the NF Thornton (in association with UVA's Shenadoah Watershed Study).~~.

B. Potential uses for the data for our project

The protocols for collecting and interpreting the macroinvertebrate data are under revision and Jeb does not recommend our attempting to use the historical data at this time. The SNP macroinvertebrate studies cannot easily be compared to the SOS

macroinvertebrate studies that RappFLOW and other volunteer groups conduct, due to very different protocols.

Regarding the fish studies, the available data could support some comparisons among the various streams within and at the Park boundary, with respect to presence/absence of certain mixes of species, and with respect to populations of brook trout within a 100 meter length of stream. Because of natural variability in fish numbers, without very long term datasets, it can often be difficult to interpret trends in fish populations over time from individual sites. The data over time from individual sites can not validly be used to interpret trends over time in fish populations or species at those sites.

Jeb strongly advises against using brook trout populations as a single measure of progress of the program/project. It may not be feasible to ever make this knowable.

B. Other current studies

Some of the studies just now being initiated or currently underway, that may be of future interest, include the following:

- Climate change modeling (temperature and humidity) on a regional level (SNP) and in relation to changes in the behavior of the rare species of salamander found in the Park

- A study of brook trout being conducted by a student at JMU

- A review of all SNP aquatics data in relation to acidification and air quality (USGS Karen Rice)

- Macroinvertebrates protocols (Va Tech)

- U VA shenandoah watershed study

- SNP for 2010 writing a report on fish
- Report on natural resources from SNP written in 2006 (http://www.nps.gov/nero/science/FINAL/SHEN_Assess/SHEN_Assess.htm

- We also discussed need to identify data available from DGIF (Nat to contact)

C. In-stream data loggers for continuous temperature monitoring.

SNP has acquired some number of instream water temperature data loggers that are not currently being used. We discussed possibilities of having those loggers placed on Park Boundaries on the streams of interest to our project, and of coordinating the settings of those data loggers with data loggers that RappFLOW, Trout Unlimited, and others may be placing further downstream on private land. Jeb will follow up to find out what are the possibilities, and will call BJ to discuss.

Jeb provided some advice on placement of our data loggers. Weigh them down and pPut

them in a rock cairn on downstream upstream side of a boulder (so it wont get washed away in storm). Try to place it in a location where it won't get buried with sediment. Take photos of the site, pointing directly at the location and draw map with written description of where logger was placed. Document very well with pix, GPS. He suggests taking temperature samples in between two loggers to find out sources of discrepancy from upstream to downstream locations. (e.g. springs, tribs, changes in land cover).