

The Nature Conservancy's Sweetwater River Project

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Background

The Sweetwater River Project was initiated by the Wyoming Field Office of The Nature Conservancy in 1991 with the acquisition of approximately 5,000 acres of private land along the Sweetwater River between South Pass and Sweetwater Station in Fremont County, Wyoming. The Conservancy became interested in this area when the property was put on the market and after hearing of the importance of the property for moose, elk, deer and pronghorn antelope habitat. As the first step, Conservancy Natural Heritage Program scientists were asked to inventory the area. In addition to discovering *Antennaria arcuata*, a globally rare plant species, and several other species rare in Wyoming, it was the consensus of the Heritage staff that this was one of the best remaining examples of a middle elevation riparian system. The river has no dams and very little withdrawal of water for irrigation purposes, leaving its hydrologic regime essentially intact. Its hydrology is driven by melting snow, with little moisture during the warm season. Over the 18 years of data gathered by the U.S. Geological Survey, streamflow varies from a late summer low of 1.5 cfs to a spring high of 5,750 cfs.

The Sweetwater is a corridor for the migration of moose and elk from their summer habitat in the Wind River Mountains and provides important winter range. It is a uniquely green ribbon of life in a huge expanse of high sagebrush desert, home to huge herds of antelope, other mammals such as river otter and mink, and many species of waterfowl and raptors. In addition to its natural attributes, the Oregon and Mormon Trails, as well as the Pony Express, follow the Sweetwater en route to the nearby continental divide.

This is not to say that the Sweetwater is an untouched paradise. Like almost all riparian areas in Wyoming, this area was heavily overgrazed earlier in this century and has seen dramatic changes from the elimination of such species as bison, bighorn sheep and grizzly bears. The landscape has been altered over the years, due to grazing practices, introduction of weeds, local extirpation of species, erosion, etc. Much of the land along the Sweetwater was unfenced and adjacent to large Bureau of Land Management common allotments, the largest of which has 500,000 acres and 17 livestock operators.

This area has had season-long grazing for many years resulting in severe degradation of the riparian area through compaction of soils, destruction of streamside vegetation, erosion of streambanks and sedimentation of the river. This has led to reduced fish populations and less winter forage for the moose herd which depends on the stands of willows along the river. We suspect that there has been a strong shift from willow dominated communities to meadows dominated by such "increaser" species as Kentucky bluegrass, adapted to repeated grazing.

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Perhaps the most dramatic changes have been caused by the near elimination of a much less charismatic character. Beaver once clogged this small river and its tributaries, according to journals of early explorers. Place names like Beaver Creek and Beaver Rim echo their previous abundance. We are only now beginning to realize how beaver may interact with the river's hydrologic regime to create the vegetational mosaic, and how the extirpation of beaver has major consequences for the riparian plant communities and their associated fish and wildlife species.

In order to protect the rare species and communities found on the property, as well as to begin the restoration of those communities, the Conservancy decided to put together a plan to acquire the property. As is often The Nature Conservancy's way, a number of creative ideas were combined to protect these important lands along the river. Some of the acquisition techniques used were:

Option – In order to gain time to develop strategies and raise money, an option was purchased to buy the property at a given price within six months.

Conservation buyer – Because the price of the ranch was high, a private buyer with a strong conservation interest was found to purchase the most expensive section of the ranch, including the ranch headquarters.

Conservation easement – The buyer donated a conservation easement back to the Conservancy which will assure that the ranch's resources will be managed properly and the land will never be subdivided for development. This assures that the land will stay in private ownership with its traditional uses protected.

Building partnerships – Neighboring ranchers who wanted to acquire isolated parcels and BLM and state grazing leases were enlisted and a team of buyers created.

Designation – Seven miles of adjacent BLM land along the river has been proposed for wilderness designation. The Nature Conservancy was not responsible for this, but has worked with the BLM to coordinate management goals.

Working in this manner, about 25 miles of the Sweetwater River have been protected to date. Parallel with the real estate activities to protect this stretch of river has been the development of a management (or stewardship) strategy to assure the long-term well being of the biological values of the land. This strategy likewise has several elements, linked together through a management plan now being written. This plan will unite the following areas into one cohesive document:

Biological management

We have developed a five stage system culminating in the management plan. These stages are:

- **Identification** What's out there? An inventory of the biological resources of the land is performed. Important species or natural communities (together called elements) are identified.
- **Element Research** What do we know about it? Through field observation, literature searches and personal contacts, information is compiled on the species or community in question.
- **Ecological Model** How does an element interact with other elements and its environment? A simple conceptual model with boxes and arrows can be extremely helpful both in understanding and manipulating the system.
- **Monitoring Plans** How will we know the results of our management? Plans for all important species and communities are formulated to provide feedback on our management practices. At the Sweetwater, surveyed transects across the riparian areas have been laid out with plant communities mapped in relation to environmental gradients like depth to water table, soil texture and salinity. A system of monitoring wells is being established to monitor the water table and the possible changes that occur as beaver recolonize the area.

- **Management Plan** How will we manage our lands? The biological information gathered through the steps above is integrated with programmatic uses of the property, maintenance needs and legal requirements into a document that provides continuity to our efforts over the years. At the Sweetwater, these other activities include the following.

Restoration and Demonstration

Instead of eliminating grazing, The Nature Conservancy plans to use this project as a demonstration of new techniques in managing grazing in riparian areas. Instead of season-long grazing, we plan to introduce a new system of grazing with large numbers of animals for short periods of time, followed by longer rest periods, imitating the grazing pattern of buffalo herds. Fences have been constructed to create a series of movable grazing cells along the river using two lines of permanent fencing roughly paralleling the river and temporary, electric cross fences that will be moved, leapfrog style, downriver as the forage is utilized in the previous cell. The advantages of this system include: the ability to easily remove the cross-river fencing in the off season facilitating the movement of moose, elk, deer and pronghorn; the lower initial cost of fencing across the river and the lower maintenance cost of not having fences exposed to ice flows and spring flooding.

Beaver will be encouraged in the project area and closely monitored. If the beaver population does not grow through natural expansion, we may consider transplanting beaver from nearby drainages and/or feeding them for a couple years to jump-start the system. Monitoring systems will be set up to show how the vegetation, streambanks and trout population respond to the change in management, hopefully resulting in an example that will inspire other riparian landowners to try new techniques.

Building partnerships

Trout Unlimited has donated \$2,000 to help fund this effort and chapter members worked over 100 person-days to build over five miles of fence. The Conservancy received

a \$10,000 grant (E.P.A. section 319 funds) through the Wyoming Riparian Association to purchase fencing materials to get the project going. The Bureau of Land Management has been extremely helpful in setting up the project. The Soil Conservation Service is doing a complete range survey. The Wyoming Game & Fish Department has performed fish population sampling and done a study on the moose herd. The University of Wyoming and the WY Department of Agriculture have also provided technical advice and support. Several local ranchers have agreed to participate in the project. They will help manage electric fences and move their livestock when target grazing levels are reached.

Visitor use and education

Public fishing, hiking and limited camping are allowed, providing benefits to the local community and building support for conservation. School groups have started to use the property for studying natural science and will be helping with restoration efforts. In addition to providing a demonstration of new grazing ideas to local ranchers, the project will be used to demonstrate to conservationists how livestock can be used as a tool for the successful management of riparian areas.

Conclusion

The Nature Conservancy has realized that the protection of biological diversity will be achieved most effectively through the conservation of whole ecosystems. Given the scale of most ecosystems, we will not be able to protect biological diversity solely through acquiring lands. Partnerships with both the private and public sectors will be critical as we move from protecting individual species to whole ecosystems. Identifying sustainable economic activities and demonstrating their compatibility will be key to accomplishing the conservation of nature's diversity. We hope that the Sweetwater River Project becomes the type of model that helps move us from the current polarized atmosphere of "jobs versus owls" to a long-term perspective that provides for secure jobs and owls (or beaver!)