U.S. Forest Service approach to river restoration as diverse as the bodies of water

By Kathryn Reed

While the goals are the same – to restore the river channel to what it was before man first messed with it, improve habitat and enhance the entire ecosystem – the approach the U.S. Forest Service is taking on two projects in the Lake Tahoe Basin is drastically different.

Cold Creek runs through High Meadow on the South Shore. The terrain allowed for the channel to be rerouted. Grasses are already growing. The water table is rising, despite this being a summer following a minimal snow year. It is peaceful – even with crews still on site.

On the West Shore, Blackwood Creek runs through the canyon of the same name. It's rocky, rugged and looks like a torrential downpour could wipe out everything that stands in its way. There is no way to reroute the channel so other modifications are necessary.

Craig Oehrli with the U.S. Forest Service stands next to a bank in Blackwood Creek that shows the damage that will be repaired. Photos/Kathryn Reed

“The site conditions are dramatically different so the approach has to be different,” Sue Norman, who is overseeing the teams doing the work, told *Lake Tahoe News*.

It also means the time it takes to achieve the goals are different, too. In three years, High Meadow may look like construction crews were never there. It may take 10 to 15 years for Blackwood not to look like a “raw, exposed construction site,” Norman said.

While both projects have something to do with water quality, that is not the overriding reason millions of dollars are being spent. If Lake Tahoe and its famously clear water didn’t exist, the work would still happen – assuming there was funding.

“The cumulative affects of land use in here is the driver (to do the work),” Craig Oehrli, who is managing the Blackwood site, says as he walks through the project area.

Ecological restoration is what drives the decision-makers within the Forest Service to go forward with projects of this magnitude.

High Meadows restoration started in 2010. The South Nevada Public Lands Management Act is financing the $2.5 million project. Blackwood Canyon has been undergoing some form of restoration for more than 25 years. The fourth and final phase began in 2010. The entire $10 million project is also funded by SNPLMA.

The bulk of the work on both sites will wrap up this fall, though monitoring will be ongoing to ensure the goals are met. Some minor work may need to be done in the spring.

Restoring the sections of the Upper Truckee River and Angora Creek that the USFS owns are the next projects; they will begin in 2013. The Upper Truckee project is a definite water quality improvement, as it delivers the most amount of sediment to Lake Tahoe. Blackwood is the second highest producer of sediment reaching the lake. However, Blackwood produces more sediment per square foot than the Upper Truckee watershed.

High Meadow

As the landscape changes, so does the animal life. Amphibian creatures are returning to this meadow at 7,843 feet. As the willows take hold, the riparian habitat will change, too.

Birds have begun to forage, deer prints are abundant, six-point bucks have come by and coyotes are everywhere, according to the crew on site.

The channel looks more like it would have had grazing never occurred and the creek not been rerouted to accommodate the needs of the private property owners.

Now the creek will be able to flood the meadow. That hasn’t

happened since the late 1800s. Sediment will be deposited into the meadow instead of going downstream, the meadow will get needed moisture and the stream channel will not erode now that it has a meander to it.

Some pools are maybe 8-feet wide, but most of the channel is no wider than 4 feet. In mid-July water started running through the 3,600 feet of new channel.

“I hope this becomes a big wildflower meadow. It hasn’t had the right water for it for a long time,” Stephanie Heller, project manager, said as she surveyed the landscape. “Where we removed the dead trees the meadow has come back.”

In the staging area logs are stacked and a mound of dirt is piled high. The wood will be used either as slash or chipped when the site is decommissioned. The dirt is from the 2010 excavation. Much of it is going to fill in the north fork.

Eighty of the 280 acres on this parcel have been restored.

The Forest Service acquired the land in 2001. It is estimated the grazing started in the 1880s and diversion of Cold Creek was in the 1890s. This watershed was also logged during the Comstock.

While the Forest Service is able to do the work it wants, there are 700 acres of private land touching this project area – including part of the road that leads to the meadow.

Blackwood

While heavy equipment is needed to move large boulders into what will be a wild river when the water table rises, and rain and snow descend, the workers are more like surgeons than contractors. They are applying the prescription needed to heal this swath of land that was damaged by previous generations.

Rock was mined from the river to build roads for the 1960 Winter Olympics at Squaw Valley. Trees were logged with

machinery in the 1950s and 1960s.

Photos dating to the 1930s help the Forest Service understand how the land and water functioned before the harvest of rock and wood began.

“There is no proof they ran a bulldozer upstream, but it an unnaturally straight channel,” Oehrli says he scampers through the rock terrain. He is almost giddy as he explains the work being done and how it will create not only a healthier river, but also an ecosystem that will thrive.

By the time the job is completed 20 acres of floodplain in this canyon between Homewood and Tahoe City will have been restored.

The crew is raising the floodplain. The floor of the river is 8 to 9 feet below the bank’s edge. It should be 3 to 4 feet.

The water is about 10 feet underground. It’s normal for Blackwood to go dry in August. It did so in July this year and still had water in September 2011.

“This is as dynamic of an area as we have in Lake Tahoe for a river process,” Oehrli said.

To keep that dynamic nature, large wood structures are being erected to resemble what would have naturally occurred. Oehrli had to point out the work because it looks so natural.

Farther up he stands next to an eroded bank that is taller than he is. Before the season is out it will have a human-made logjam against it to prevent erosion.

In 2008 and 2009 the Forest Service erected 13 rock-log flow deflection structures and 28 log-based floodplain roughness structures.

An erosion analysis was done that determined a 500-foot area was contributing 20 percent of the sediment problem. In all,

3,500 feet of the river has been rebuilt.

Oehrli takes a rock and without much effort it dissolves. This volcanic material is throughout the streambed.

“With a little water and weathering it melts in place,” Oehrli explains. More sediment.

So much is going on this watershed that it doubles as a classroom. College instructors have brought their students to the area to learn about this ecosystem.

Changing the slope will slow down the energy and dissipate the water. It will mean reducing the sediment flowing into Lake Tahoe, especially after the California Tahoe Conservancy finishes its project that links the river to the lake.

Near where the log structure is in place it looks like a riverbed. A year ago the water was 5-feet deep where people were standing last week. Cottonwoods are beginning to sprout. And while the river has exposed herself here, she meanders in a gentle flow.

These are the changes the Forest Service was seeking when in it first went to work on Blackwood Creek.

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