Prescription for a Troubled Stream

Steve Ellis and Lynn Danly

Ten years ago, Bud and Nick Purdy knew they had a problem at Copper Creek, a perennial stream that flows through their south-central Idaho ranch.

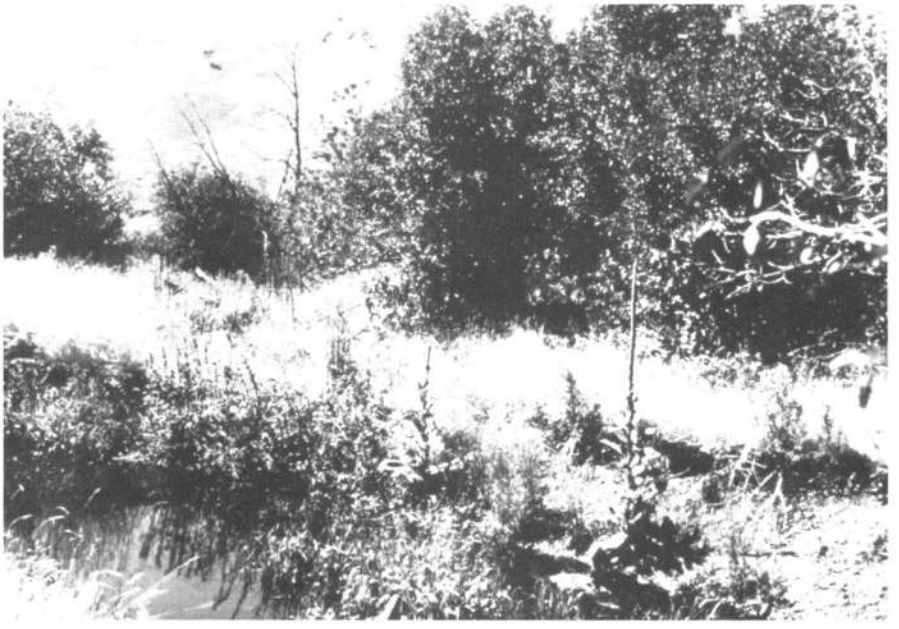
Copper Creek was showing the classic symptoms of a stream in trouble. The creek's sidebanks were steep and badly eroded. The water table was dropping. Sagebrush and other plants typical of drier areas were invading what historically had been the green rim of a riparian area. Sediment threatened to choke the stream, and the willows and sedges that provided cover for the creek were beginning to disappear.

The condition was a far cry from the creek that the Purdys and other long-time residents remembered as a stream that once was home to a healthy population of trout and helped to support an abundance of wildlife—elk, mule deer, pronghorn antelope and upland game birds. Copper Creek was too valuable a resource to merely stand back and watch while it deteriorated further. Something needed to be done—quickly—to restore it.

Copper Creek flows through the Bureau of Land Management's Lava Lake Allotment, so the Purdys approached BLM's Shoshone District about the problem. They also talked with the Soil Conservation Service (SCS) and it wasn't long before the ranchers and employees of the two agencies sat down and discussed what it would take to fix the stream.

What it would take, the ranchers and federal employees decided, was a change in management practices that addressed the problems of the entire watershed and not just a seg-

The 1988 photo shows slack water from a small dam. Notice the eroded bank, reduced production and sagebrush seedlings beginning to establish along the far bank.



Two years later in 1990 the water level has risen within a foot of the level it was prior to downcutting. Subsequent sub-irrigation of the former riparian area has dramatically increased vegetation production and vegetation is changing back to a riparian type.

Steve Ellis is the former manager of BLM's Monument Resource Area in the Shoshone, Idaho, District. He recently transferred to BLM's Washington, D.C. office. He has worked 13 years for BLM. Lynn Danly was a range conservationist in the Monument Resource Area. She is now in the Coeur d Alene Districe office and has worked for BLM since 1989.

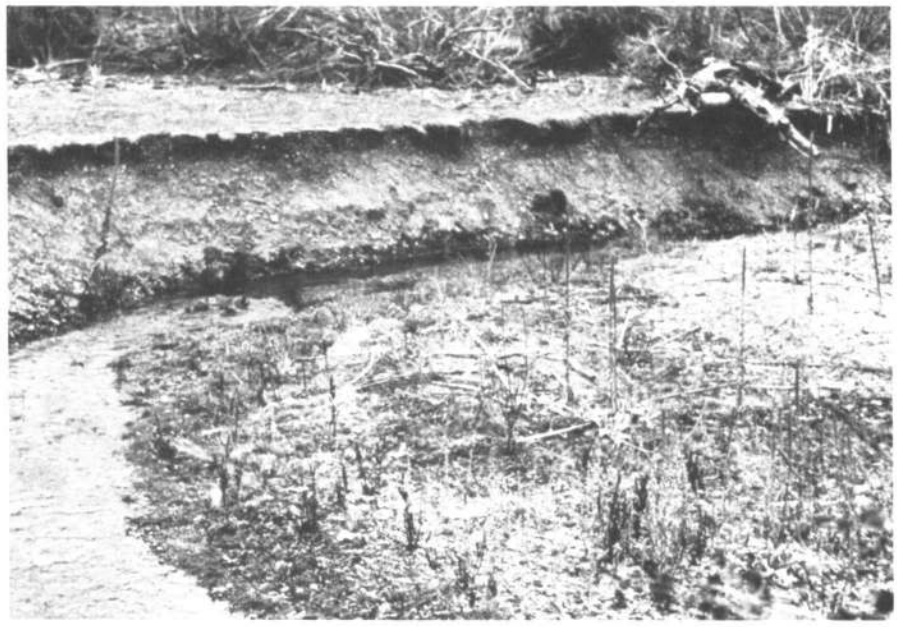
ment of the stream. The prescription for Cooper Creek needed to treat the entire problem and not just the symptoms.

That was the beginning of a "Coordinated Resource Management Plan" (CRMP) that took into account not only management of Copper Creek but also the surrounding upland area. According to Steve Ellis, then the Monument Resource Area manager, the coordinated approach was the only way to make a lasting difference in the Lava Lake Allotment.

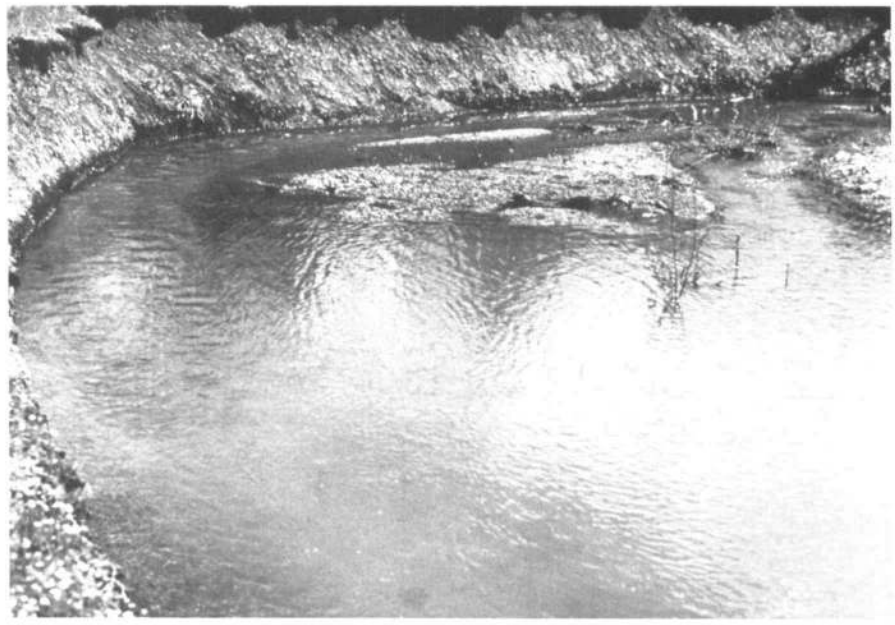
Cooperation was a must because the land patterns are such that many stream bottoms are privately owned, Ellis says. Only short segments are publicly owned, but improvement depended on treating the entire stream reach and the uplands, he says. "For example, the Lava Lake Allotment is about 16,000 acres. Most of it is BLM land, but almost 4,900 acres is private, and the state owns a little more than 900 acres. That's really a mixed bag of ownership. So if there's no cooperation or no commitment among all parties, there's no long-lasting improvement. It's that simple," says Ellis.

The CRMP outlined four steps to help reverse the fortunes of Copper Creek. First, it recommended a deferred rotation grazing system, to keep livestock out of the riparian area during critical times. Next, it called for maintaining sufficient habitat for big game and upland game birds. Third, the CRMP set a goal of having 80 percent of the allotment remain in native vegetation to help prevent invasion by sagebrush and annual plants. Finally, the plan advocated brush control on private lands to help maintain native vegetation and seeding to protect the watershed when needed.

Riparian areas were singled out for special attention in the plan. One of the first chores was to help improve the eroding channel. BLM, SCS and the Purdys turned for help to one of the most efficient hydraulic engineers around: the beaver. Three of them were released in Copper Creek in 1985, with two more of the flat-tailed mammals turned loose the next year.



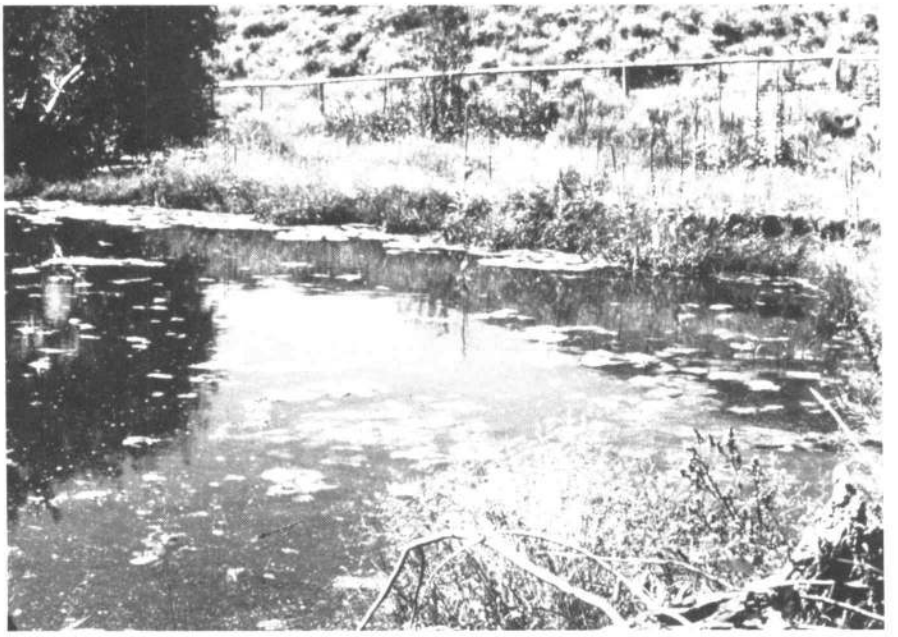
1985—Condition of the channel prior to beaver introduction. With proper grazing management and beaver, this sagebrush flat should return to a meadow condition.



April 1986—Beaver have just started to construct their first dam.

Within a year, the healing of Copper Creek began. The beavers began doing what they do best—building dams that backed up water and formed ponds. The ponds, in turn, trapped sediment and recharged the stream banks. Erosion slowed, and streamside plants began to thrive. The work of the beavers, combined with the changes in grazing use, caused a dramatic change in the quality of the riparian area.

The beavers are really efficient, says Lynn Danly, a range conservationist. "The dams they build are less prone to washing out than human-



September 1990 — In the fall of 1989, beaver moved downstream and constructed this new dam. As a result the channel is starting to heal, the water table is rising, and the vegetation is improving.

made structures. And the beavers are always going to be around to repair them, plus they're cheap."

The timing of all these changes couldn't have been better. Idaho, like much of the West, was just about to barge into a drought that still lingers today. The handiwork of BLM, SCS, the ranchers and their webbed-foot partners was put to the test.

They weren't disappointed with the results. Despite the dry conditions, the stream thrived. The water table continued to rise and stream flows were maintained late into the summer, thanks mostly to the 50 beaver ponds that had been built. More willow trees and less sagebrush grew along the old bank cuts. Cover and forage in the riparian area also increased during the drought.

Wildlife populations in the allotment, particularly elk numbers, jumped up. And most telling of all, small trout were again seen gliding in portions of Copper Creek.

All of which was according to plan, says Ellis. If riparian areas are managed well, they'll withstand drought conditions. In healthy riparian areas, the banks act like a sponge, and provide greater water yields that last longer into the season.

The Copper Creek riparian area shows the most marked improvement. But the nearby uplands also have benefitted from the grazing systems adopted because of the CRMP. The overall range condition is better and the diversity of native perennials, forbs and shrubs has been maintained. Study areas show that perennial bunchgrasses and groundcover increased between 1984 and 1989, meaning less potential for erosion and more forage for livestock and wildlife.

Nick Purdy has noticed the change. Before the change in management, he said that he ran 200 head of livestock in the summer only. Now, he's up to 400 head year-round.

Danly says that using beaver to help restore riparian areas is a relatively new technique. Right now, the Shoshone District is the only place in Idaho and one of the few anywhere that's putting the animals to work in streams. But district employees are spreading the word around to other places, hoping that they will implement a similar program.

Ellis points out that it was the combination of beavers and grazing practices that led to the overall improvement in the Lava Lakes Allotment. "You can't just throw beaver at the problem to solve it. You have to combine that with good grazing management, too. That's the key—it takes both."

Stories with endings similar to that at the Lava Lake Allotment are becoming more common in BLM. BLM manages more than 270 million acres and about 9% of that is classified as riparian or wetland areas. In 1987, the agency developed a national riparian area policy that has become a blueprint for management and restoration of riparian areas and wetlands on public lands.

The policy makes a lot of sense, says Ellis, because it allows local offices the latitude to address riparian concerns and develop their own prescriptions for improving management.

And if one theme runs through all of the successes in the Shoshone District—and perhaps the entire BLM as well—it's that cooperation with private landowners and other agencies is essential.

"The Lava Lake allotment project is a testimony to the fact that cooperation is a must. We had two federal agencies, the state, and private landowners all involved. Without complete cooperation, we couldn't have tailored a plan to fit the situation." explains Ellis.

So successful was the effort at Copper Creek that BLM and dozens of friends and neighbors from around the area celebrated a "Range Excellence Field Day" in June of 1991, complete with a tour, western barbecue and plaques to honor the Purdys' contributions. It was an appropriate way to recognize the good work—by the agencies, ranchers and a handful of bucked-toothed rodents—in restoring the stream.

"We've all worked together well on it. It just takes cooperation and planning," concludes Nick Purdy.