CONSERVATION

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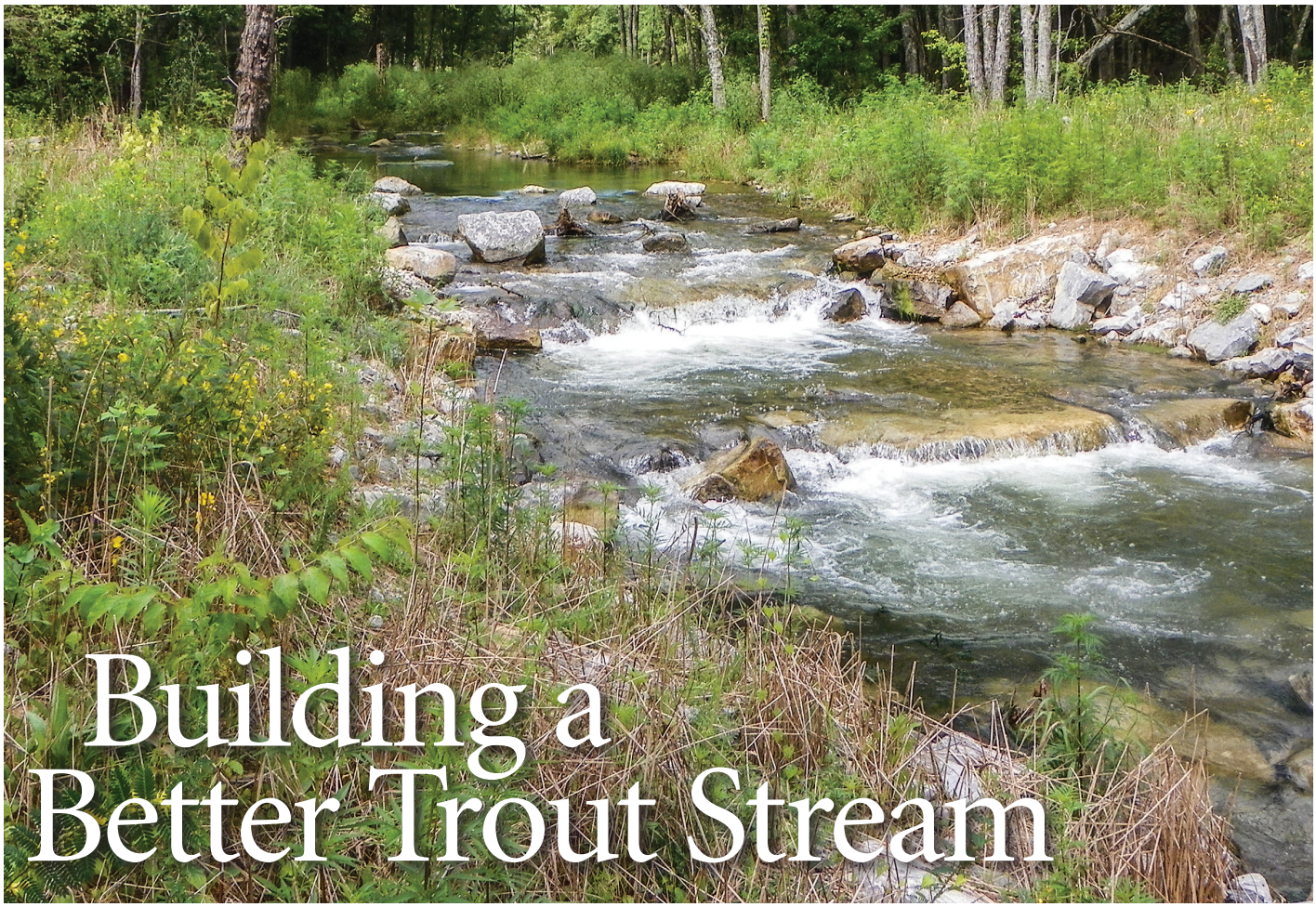

Building a Better Trout Stream

Natural looking, sustainable, and completely man-made. *by Steve Culton*

I'VE ALWAYS HAD THIS FANTASY that if I won the lottery, I'd buy several acres of land and build my own private trout stream. It would have slow runs, bubbling riffles, deep pockets, and dark, mysterious bend pools. It would be a hospitable place for aquatic insects and, of course, trout. Most of all, it would look just like any river created by the forces of nature.

My utopian dream faces two daunting obstacles: winning all those millions, and finding a contractor capable of creating a fly fishing paradise out of dry land. Then again, I could always call on the people who built Hatchery Creek in Kentucky. Because that's exactly what they did.

We have met the enemy, and it is erosion.

Hatchery Creek is a tailwater, located in South Central Kentucky below the Wolf Creek Dam, which forms Lake Cumberland. The cold water from the lake flows into the Wolf Creek National Fish Hatchery, operated by the U.S. Fish and Wildlife Service.

From the dam outlet to the creek's confluence with the Cumberland River, the elevation falls 47 feet. The problem with the old stream, says Mike Hardin, Kentucky Fish and Wildlife Fisheries Division Assistant Director (and Hatchery Creek Program Manager), was one all too familiar to anglers.

"Over time it eroded this deep, ugly gully. You know the ease with which erosion and sediment can impact a fishery. On this particular one, you could easily see the sediment plume entering the Cumberland River from aerial photos.

"The hatchery already had a small grouted [concrete-lined] channel of a few hundred feet before it entered into the gully," Hardin says. "The gully was really unsafe, muddy, and it had frequent landslides. So we looked at it and asked, 'Can we let that water run down in some other fashion? Some way that's beneficial, that provides habitat necessary for fish and wildlife, especially trout?'"

Thus was born the idea for the new Hatchery Creek.

ECOGRO/RIDGEWATER-STANIC TEAM

BRAD REDMON

Over time, the original channel for Hatchery Creek below Wolf Creek Dam (in red, top right) eroded into an unproductive chute laden with sediment. To improve fish habitat for resident Cumberland River trout, and boost overall fish numbers, Kentucky state fisheries managers decided to build a new Hatchery Creek (blue line, top right), replete with clean gravel, riffles, pools, and public access (top left). Since completion, anglers are seeing more and larger trout (bottom right), and signs of wild, spawning fish.

Any large-scale public undertaking raises the question, "Who's going to pay for all this?" Fortunately for the Hatchery Creek project, funding was never a major issue. "The department here manages a stream and wetland mitigation trust fund to undertake projects that improve stream and wetland habitat," Hardin explains. "By the mid-2000s we had accrued enough money." Construction for the over-a-mile-long new stream began in 2014."

In the case of the old Hatchery Creek, the shortest hydrological distance between two points was a silt-inducing disaster. So the new creek would require a carefully thought-out streambed—one that would maintain natural-looking

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Building Hatchery Creek so it included all the characteristics of a natural system, especially where it merges with the mainstem of the Cumberland River (top left), so it attracted and held resident fish, was not an easy task both from a planning and logistical standpoint. Restoration engineers, hydrologists, and biologists supervised the placement of hundreds of tons of gravel, boulders, logs, and other structure (middle left). Even though work ceased in late 2015 (bottom left), those involved wanted to make sure it was "done right," and didn't open public access until April, 2016 (right).

characteristics without creating problematic flows. This new channel was designed by experienced stream restoration engineers, working in conjunction with a team of hydrologists and biologists.

"We routed a new path down the valley for six thousand feet," Hardin says. "Our goals were good habitat, no erosion, and a premier trout fishery. The thinking was that trout [rainbow, brown, and brook] would move up from the Cumberland River, especially large trophy trout over twenty inches. We thought, how cool would it be to create a new stream that trout could use, and maybe even come up and spawn?"

To facilitate that possibility, Hatchery Creek's planners made the streambed

DAVE BAKER

procreation friendly.

"As part of the project, we hauled in over eighteen hundred tons of round river gravel the size [8 to 20 mm] that trout like to spawn on," says Hardin. "Of course, we have rocks that are bigger and smaller than that, but we made sure we had plenty in the size range they prefer."

Although the project was completed in the fall of 2015, Hatchery Creek was not opened to the public until late April 2016.

"We wanted the vegetation to establish and have things settle in a bit before we opened it to the public," explains Hardin.

Within four days after water was released into the new channel, trout from the Cumberland River had taken up residence.

"I'd call that immediate," Hardin says with a chuckle. "I guess they like the habitat. We sampled the stream a few times before we opened it for fishing, and we were seeing really good numbers of fish, with many over fifteen inches and a few over twenty inches."

Hardin describes the water flow with no small amount of enthusiasm.

"It's a nice, meandering little stream. We have about five acres of wetlands that border the new stream where it splits into braided channels, then rejoins the stream. We have riffles, and runs, and outside deep bend pools." The bend pools are of particular interest to anglers because of their design. The engineers built substantial undercut banks into them—what one contractor dubbed a "lunker bunker."

What's different about these lunker bunkers is that they are designed to be sustainable, and not become a future source of erosion-created sediment. In fact, the new Hatchery Creek is entirely low- to no-maintenance.

"It's designed to be stable on its own, and as trees start to grow and take over, it will naturalize." Much of the stream is crossable and wade-angling friendly. Flow release from the dam is a constant 25 to 35 cfs, which translates to 18 million gallons of cold water a day.

What about bugs?

Even though Hatchery Creek is man-made, the hope is that the invertebrate life that constitutes such a large part of the average trout's diet will take up natural residence.

"We're doing some long-term monitoring of that with the help of Murray State University," says Hardin. "Some insect life has already moved in, and hopefully scuds and mayflies won't be far behind." But Hardin cautions that, "it's still early, it's still a new stream, so we'll have to go through a season to let those become established."

The water levels of the Cumberland River will come up during the day as electricity is generated through the dam, making the river undesirably high for angling. But Hatchery Creek will provide a viable alternative for those keen on fishing.

"There's also a campground nearby that's very popular that the [U.S. Army] Corps of Engineers manages. We've already had several campers express just how nice Hatchery Creek is, and they're very appreciative of it."

Hardin sees the project as a success on multiple levels.

"The big thing here from an ecological standpoint is that the existing conditions were unsatisfactory for several reasons. In restoring this stream habitat, we've also created an area that hopefully anglers will see as a destination."

And they won't have win Powerball to do it.

Steve Culton is an outdoor writer, guide, speaker, and fly tier. You can see more of his work at www.currentseams.com.