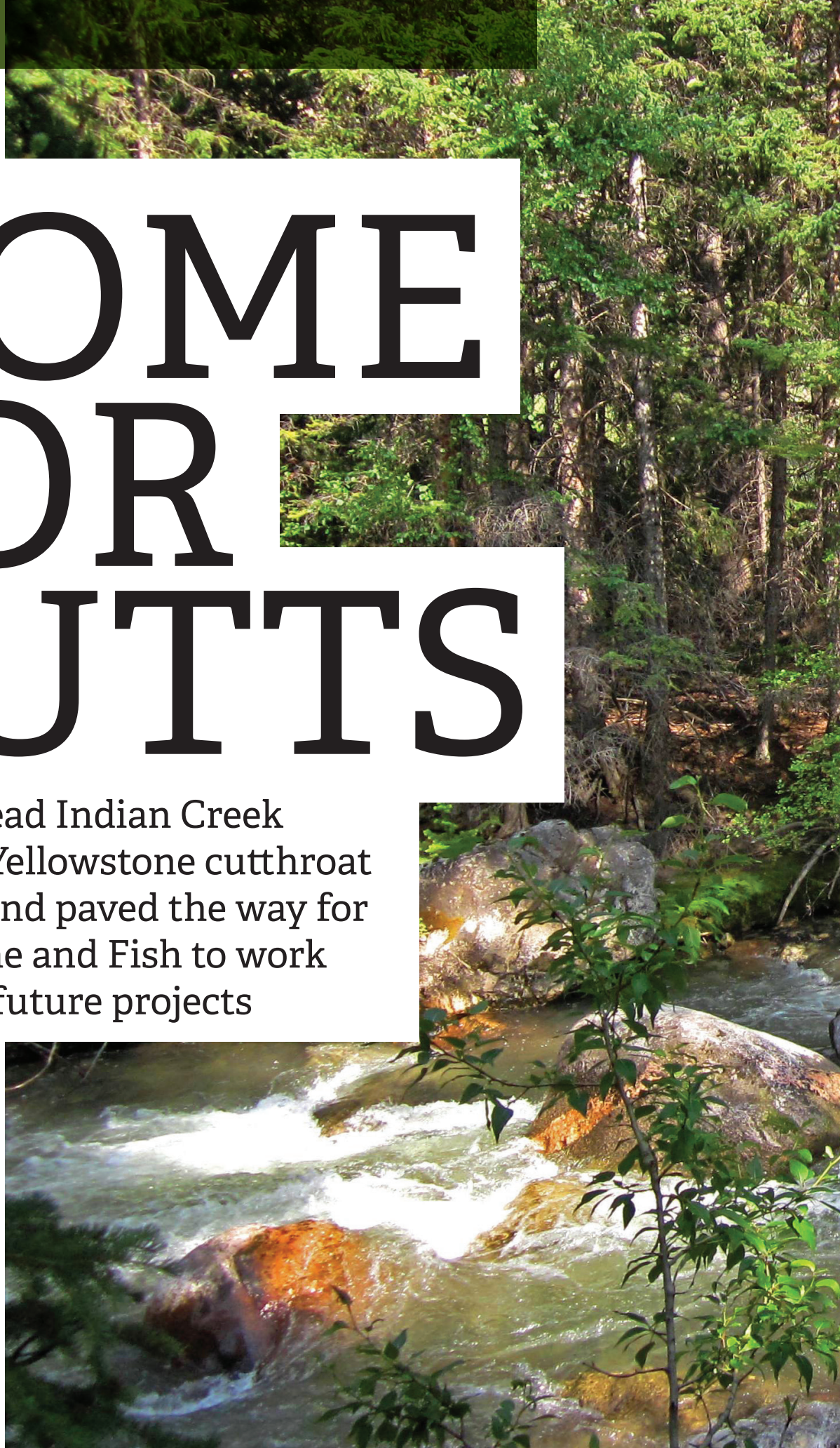
HOME FOR CUTTS

Restoring Dead Indian Creek enhanced a Yellowstone cutthroat population and paved the way for anglers, Game and Fish to work together on future projects

By Amy Bulger



Karsyn Smith fly-fishes Dead Indian Creek in 2015 for Yellowstone cutthroats. Just 13 at the time, her family frequently visited the creek both before and after restoration work and have always known it as a good place to drop a line, whether for rainbows or cutts. Karsyn's father, Mark Smith, was a Game and Fish regional fisheries biologist in Cody at the time and helped with the cutthroat restoration. *(Photo by Mark Smith/ WGFD)*

PROJECT SITE

Dead Indian Creek

Wyoming Game and Fish treated 9 miles of Dead Indian Creek and then restored it with a self-sustaining Yellowstone cutthroat trout fishery.

CLARKS FORK RIVER

TO MONTANA

TO CODY

LOWER FALLS

DEAD INDIAN CREEK

UPPER FALLS

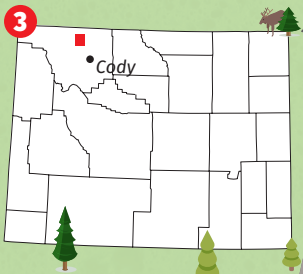
NORTH ABSAROKA WILDERNESS

296

P ROTENONE DEACTIVATION
Buckets dispensing a solution of potassium permanganate were placed at two sites downstream from the treatment area before water reached the Clarks Fork. The compound turns purple in water and neutralizes rotenone before quickly breaking down into components found in nature.

R ROTENONE TREATMENTS
Rotenone drip stations were placed at four points along the river in 2009 and 2010 to ensure all fish were removed from the creek before reintroducing cutthroats.

C CANARY CAGE
"Canaries" (live fish) were collected from the creek before treatment and places in cages called "live cars" at four points in the river. Observing fish in upstream cars helped biologists gauge the proper treatment concentrations, while monitoring fish in the downstream car ensured the rotenone deactivation worked properly.



Legend

1. Dead Indian Campground and Wyoming Game and Fish Department project base station.
2. Highway 296/Chief Joseph Scenic Byway
3. Red rectangle indicates the project location in the state
4. A small Yellowstone cutthroat population still lives in 6 miles of water above the upper falls, ancestors of fish stocked in the 1940s.

R Rotenone treatment locations

P Rotenone deactivation sites

C Canary cage locations

N E S W

Distances on map are not proportional.

Cutthroats are the only trout native to Wyoming. The range of Yellowstone cutts, once found in more than 17,000 miles of streams across the West, has shrunk to about 7,500 miles of their historic range. Though populations have stabilized, Game and Fish has completed eight cutthroat restoration projects and is working to identify more places to help protect this fish long into the future. *(Photo by Mark Smith/WGFD)*

It wasn't hard to get hooked on the creek. When Garrett Growney moved to Cody, the devoted angler spent a year scouting out small, less crowded streams to fill his list of favorite fishing spots. He quickly found Dead Indian Creek intersecting Chief Joseph Highway, less than an hour from his front door. In this skinny slice of water he could catch nearly a couple dozen fish in an afternoon without much distraction.

"It's a beautiful little stream: it's always been a good fishery," he said. "I'd typically catch a lot of fish but without much size. They were rainbow hybrids mostly, only about 1 in 20 were pure cutthroats."

For Growney, it offered solitude close to home and enough action to keep him coming back for 15 years. By 2006, although rainbows and hybrid cuttbows were plentiful, there were few pure cutthroats left, and the little stream fell onto the Wyoming Game and Fish Department radar as a place for opportunity.

A small population of genetically pure Yellowstone cutthroat trout still lived upstream, naturally barricaded by a waterfall. Below that, the habitat was perfect to establish a new, wild population. Doing so would increase the range of a fish that's historically declined in Wyoming waters. But the most efficient and reliable way to bring the Yellowstone cutthroats back was by using a chemical treatment to remove competing nonnative trout. That process would upend fishing for a couple years.

Growney was among a cadre of anglers skeptical of the plan. From a streamside vantage point, it was hard to see the reasons behind "fixing" a creek that didn't seem broken.

"There were lots of bugs around, the water was good, fish were plentiful. Why put a chemical into a river and kill all that off when it doesn't appear to need it?" he questioned.

Surveys began in 2006, public meetings followed and the restoration began in 2009. Almost nine years later, both a river and a mindset have changed. Dead Indian Creek now has a healthy, sustaining population of native Yellowstone cutts. The water is on track to being forever protected. And, like other anglers, Growney has returned to pull fish from its depths, a skeptic turned supporter.

The Chief Joseph Highway, Wyoming Highway 296, winds through the northwest corner of Wyoming to join the Beartooth Highway into Montana. The route follows part of the trail the famous Nez Perce Indian chief took toward Canada, leading his tribe on their ill-fated escape from U.S. cavalry troops in 1877. From Dead Indian Pass the winding road cuts to the valley floor, crossing water at Dead Indian Campground about 23 miles from Cody. A tributary of the Clarks Fork of the Yellowstone River, Dead Indian Creek slows to wide riffles near the campground but narrows upstream and down into steep canyons and better fishing with a mile or two put in on foot.

Like many creeks in this region, Dead Indian started out fishless according to 1894 accounts, isolated from the Clarks Fork downstream by steep waterfalls. Cutthroats — the only trout native to Wyoming — were first stocked in 1946, according to early records. Nonnative rainbow and brookies were stocked from 1951-58 to build up sport fish popular at the time. The brookies

Jason Burckhardt, Game and Fish fisheries biologist, holds a transport bucket while Aaron McGuire, a temporary fish tech, transfers Yellowstone cutthroats from the net to place quickly into Dead Indian Creek. The cutts stocked in the creek by truck and helicopter from 2011 to 2013 came from the Tensleep Hatchery, and the stream has been populated since by their wild-spawned offspring. *(WGFD photo)*

have long since disappeared, but the flashy yellow sides and bright red gills give away the Yellowstone cutthroats still living in the upstream reaches.

Yellowstone cutts are native to the upper Yellowstone River drainage including in the Bighorn Basin and eastern slope of the Greater Yellowstone Ecosystem. The species once occupied more than 17,000 miles of streams in western U.S. waters but declined from over-harvest, environmental and water use impacts, and competition with nonnative trout. The U.S. Fish and Wildlife Service was petitioned to list the Yellowstone cutthroat as a threatened species under the Endangered Species Act in 1998. Although the listing was found unwarranted, the fish remains a species of special concern for state and federal agencies.

"It all comes down to restoration," said Alan Osterland, fisheries chief for Game and Fish. "We recognize Yellowstone cutthroats have dwindled over the past few decades. We're trying to be proactive and restore this species in its historic range."

Nonnative trout, prized for providing angling opportunities, are now the greatest menace to the cutthroat's survival.

"Yellowstone cutthroats evolved without competition and don't do well in the presence of nonnative trout," said Jason Burckhardt, the Game and Fish fisheries biologist who led the restoration project. "There are places where brookies have completely eliminated cutthroat populations through competition and predation, and other places where crossbreeding with rainbow trout has eliminated genetically pure cutts."

Game and Fish has completed restoration projects on eight streams so far to help combat the threat. Projects like the one at Dead Indian Creek have helped halt the decline, said Cody Fisheries Supervisor Sam Hochhalter. But Yellowstone cutts now inhabit only about 7,500 miles, about 40 percent, of their historic range.

"Numerically, Yellowstone cutthroat populations have been stable for the last 10 years, but that's not a good perspective of what's going on," Hochhalter said. "In the Cody region, there are nearly 300 miles of stream occupied by Yellowstone cutts, but we're losing them to hybridization with nonnative rainbows. So, 100 years from now, that'll be 300 miles of streams that will be scratched off the list. When you just look at a map, you can't see that."

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In 2009 and 2010, Burckhardt and Game and Fish crew members began restoring Dead Indian Creek with a small budget of $5,200 for treatment and the rest sweat equity.

The middle section of stream earmarked for treatment had few tributaries where nonnative fish could hide and the section was between two waterfalls, natural guarantees that a restored cutthroat population would not be compromised by nonnative fish wandering upstream from the Clarks Fork.

Along the way, federal paperwork and additional studies for wilderness area projects added a year to the project timeline. This was the first Game and Fish restoration project to take place within a congressionally designated wilderness area. Three of the nine project miles were in the North Absaroka Wilderness, which posed a challenge: No motorized travel.

Crews used pack horses but also hiked in where horses couldn't travel. With heavy packs strapped to their backs, they carried chemicals, the equipment needed to dispense them, block nets and large fish cages called live cars. They wrestled over the rugged terrain with bear boxes that look like large trash cans on wheels.

And whatever was packed in had to be packed out.

The first step was to treat the creek with rotenone in 2009 and 2010 to remove all nonnative rainbows, hybrid cuttbows and other fish in the project area. Rotenone is an odorless, colorless chemical found naturally in the seeds and stems of some plants. Its ability to inhibit breathing in gilled animals while having low toxic effects on other wildlife makes it a popular choice to remove fish from streams. At the downstream end of the section, rotenone's effects were neutralized by potassium permanganate. The compound, also widely used in cities to treat drinking water, turns purple when applied to water and breaks down quickly in a stream into nontoxic components found commonly in nature.

Rotenone has the potential to also affect gilled aquatic insects and larval amphibians, which fueled strong reactions from some. Opponents of the project left biting anonymous messages at the campground where Game and Fish staged operations. Some anglers expressed opposition to disrupting a good fishing spot. Game and Fish had considered other options of electrofishing and unlimited angling, but neither offered the guarantee that nonnative fish would be eradicated, a crucial step in the project.

"We learned a lot about the social aspect of our jobs here," said Hochhalter. "How quickly anglers can return to fishing is important, and we've learned to do everything we can to restore a fishable population as quick as we can."

Burckhardt kept his eye on the big picture.

"If we don't do these kinds of projects, we're going to lose the species for this and future generations," he said.

Once treatments were complete, from 2011 to 2013 biologists stocked Yellowstone cutthroats from the Tensleep Hatchery all the way upstream to the wilderness area by truck and helicopter. Then

Fishing Regulations

The daily creel and possession limits at Dead Indian Creek are three trout that include: cutthroats, rainbows, browns, goldens, tigers, grayling, salmon, splake and other hybrids. Of those, only one trout can be more than 16 inches long and only one cutthroat can be more than 12 inches long. Brook and lake trout are not included in any creel limits.

Fishing licenses are required for resident and nonresident anglers 14 and older; day, week and annual licenses are available online at *wgfd.wyo.gov/apply-or-buy*.

Mark Smith, right, then a Game and Fish fisheries biologist in Cody, holds a makeshift funnel while fisheries biologist Jason Burckhardt pours potassium permanganate into a large blue bladder full of water. The solution mixes in the bladder and is siphoned to buckets to be released in the creek downstream of the rotenone treatments. This compound ensures fish downstream in the Clarks Fork aren't affected by treatments upriver. *(WGFD photo)*

Cutthroat Trout Collaborative opens conversations with residents

The Yellowstone cutthroat trout restoration at Dead Indian Creek was one of eight similar restoration projects spurred by the Wyoming Game and Fish Department.

After its success, projects were planned for Porcupine Creek in 2013 and Eagle Creek in 2016. Those were both met with opposition and discontinued, but all three projects helped Cody Fisheries Supervisor Sam Hochhalter develop ideas about better engaging with the community about Game and Fish goals.

That led to the Cutthroat Trout Collaborative, an outreach program that gets the public involved to consider where future cutthroat restoration work could be done in the Bighorn Basin. Meetings were held in Cody, Worland and Lovell for the community to express interests and concerns and listen to biologists talk about the science behind projects. By the fall, residents and biologists will agree on recommendations to guide future cutthroat restoration projects in the Absaroka, Beartooth and Bighorn mountains.

Cody angler Garrett Growney was at the first round of the collaborative meetings in late January. He understands how a conversation can go a long way to understanding project concepts.

Once opposed to the Dead Indian Creek project, Growney became a supporter only after seeing the fishery restored so quickly and "it also helped to be able to have conversations with Sam. It takes having that interaction to see they're not trying to damage anything. Any time you can have a face-to-face meeting it's so much more helpful than reading a public notice."

Emmrey Smith, 9 in the photo, holds on to a feisty Yellowstone cutthroat she caught upstream of the campground at Dead Indian Creek in 2015. Her father, Game and Fish assistant fisheries management coordinator Mark Smith, liked Dead Indian Creek because it was easily accessible and a good place for a weekend family adventure. *(Photo by Mark Smith/WGFD)*

the waiting and wondering began. Success would be dictated by nature and measured by Game and Fish, through a population of cutthroats that maintains itself and increases without additional stocking.

Studies on the completed restoration work continue today, and all signs point to that success. Over the years, the cutthroats stocked in Dead Indian Creek, identifiable by clipped adipose fins, have been replaced by their wild offspring spawned in the stream.

"I went up the next season after the project was done and, even though I read it would take two or three seasons to restore the fishery, I was already catching cutts. I was happy to see that," Growney said. "One thing I've noticed is size has increased dramatically, they're larger and they're healthier."

A good day for him on Dead Indian Creek now means catching six or seven fish in a couple hours — but they are 10- to 16-inchers, much bigger than in the old days.

With a sustaining population in place, Game and Fish is working to keep Dead Indian Creek on the list of top places to fish for Yellowstone cutthroats. An instream flow water right was filed in April 2017 to provide permanent protection for 5.2 miles of the creek, including most of the restoration area. It is currently in the permitting process that all water rights go through for the state. It will ensure an adequate, continuous supply of water courses through the creek, so the cutts can survive no matter what's happening on the banks.

"Keeping enough water in the stream is essentially building the house where fish can live comfortably," said Tom Annear, Game and Fish's water management supervisor. "We're acting on the opportunity we have today to protect this stream from what might happen here in 100 years.

"There may be creative ways to use water in the future we haven't even thought about today. Look at Vail, look at Jackson Hole, they were dusty, out-of-the-way cow towns 100 years ago. Today we look at Dead Indian Creek and ask: Could there be a resort here in the future or some water use that could dry up the creek?"

Insurance against future water removal that might harm the fishery is the last step in a project that has spanned more than a decade and helped Game and Fish craft new working relationships with the public.

"More people want that opportunity to fish for wild cutthroat trout than don't," said Hochhalter. "We've done surveys at our meetings, and even people who are opposed to a project recognize that doing good things for cutthroats is important. And these projects can be rewarding for the community, because people want to leave streams like these in great shape for subsequent generations."

He takes pride fielding phone calls now from anglers looking for places to fish for Yellowstone cutthroat trout and being able to send them to Dead Indian Creek.

"They call wanting to find places because they are doing the Cutt Slam or X-Stream Angler challenges, or they just want to have a unique experience of catching native trout. That's part of what it means to live in this part of Wyoming."

—Amy Bulger is the editor of Wyoming Wildlife.

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