



# MONTANA'S BELOVED BROWNS

Though not native, this hardy and hard-to-catch trout has firmly established itself in the Treasure State.

By Jeff Erickson

**TO THE NET** An angler works to land a big brown trout on the Bull River. Browns are considered the most difficult trout to hook, and they can grow to 20 inches or longer in many rivers.

PHOTO BY BEN PIERCE



**On a cool, cloudy October evening in a side channel of the Missouri River,** I repeatedly hurled a weighted Woolly Bugger tight to the boulders below the brushy bank, the meaty bug just missing my head as it whistled past my ear. Finally, on one retrieve, a large fish attacked the black streamer.

The fish sulked in the depths, shaking its head, then raced downstream toward a beaver lodge, my reel screaming in protest. I just managed to turn the trout before it disappeared into the underwater logs, a back-and-forth battle that gradually tilted in my favor. I finally landed the beautiful 20-inch brown just as the setting sun broke through the clouds and illuminated the snowcapped peaks of the Big Belt Mountains.

I unhooked and released the trout in the fading light, which revealed its formidable hooked jaws and brilliant coloration. Its broad back was painted olive—rusty and buttery toward the belly—with red and black spots, and, around the gills, splashes of indigo.

Given their widespread distribution, wild populations, and popularity in Montana, it's easy to forget that brown trout—like many human Montanans—are relatively recent immigrants. But this is one fish species no one should take for granted. In fact, if any salmonid can survive the state's warming weather, growing angler pressure, and on-slaught of fish diseases, it's probably this one.

#### Von Behrs and Loch Levens

The original worldwide distribution of brown trout (*Salmo trutta*) was astonishingly vast. The species and variants were native to portions of Iceland, the United Kingdom and Ireland, continental Europe, southwestern Asia, and the Atlas Mountains of northern Africa. Brown trout eggs were originally imported to the United States in the late 1800s from Europe. “The von Behr and Loch Leven

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are varieties of brown trout brought from Germany and Scotland, respectively. They are now irretrievably mixed,” improving genetic diversity, Montana Fish, Wildlife & Parks fisheries biologists George Holton and Howard Johnson write in their 1996 *A Field Guide to Montana Fishes*.

For years, it wasn't unusual for Montana



**OLD-COUNTRY ORIGINS** Illustrations of the Loch Leven trout (top) and the von Behr trout by Miles E. Rost, from his 1934 catalog *A Portfolio of Fish*.

anglers to refer to these fish as “German browns” or “Loch Levens” (after the famous Scottish lake that supplied brown trout eggs to the United States). Even today, a Yellowstone River FWP fishing access site in the Paradise Valley is named Loch Leven. And the abbreviation that FWP biologists and technicians still use for brown trout is “LL.”

Though Western waters were already filled with native bull trout, Arctic grayling, and westslope cutthroat trout, browns held special appeal for immigrants from Europe. The U.S. Bureau of Fisheries first stocked browns in Yellowstone National Park's Firehole River basin in 1889, the same year

Montana became a state. From there, browns likely made their way downstream into Montana via the Madison, becoming widespread in that river by 1917. They eventually entered the Missouri River and spread up its tributaries, establishing naturally reproducing populations.

Subsequent stockings around Montana greatly expanded their range, including the Yellowstone and Clark Fork drainages. Angling clubs across the state often helped with stocking, sometimes from their own private hatcheries (before aquaculture became highly regulated by the state to prevent the spread of disease and invasive species).

In *A History of Montana's Fisheries Division, 1890-1958*, FWP fisheries biologist Bill Alvord writes that “special railroad cars were developed with aeration systems which made possible the transportation of fairly large numbers of fish over long distances.” Montana's first fish hatchery was completed in 1896 on Bridger Creek near Bozeman, and brown, brook, and rainbow trout were distributed by rail from the facility widely over the next several decades.

As more hatcheries were built in the early 20th century, diverse fish species, including browns, were planted across Montana. “Practically every accessible water in the state received fish of some kind at the discretion of the planter and without regard to actual need or desirability. A scientific basis for fish stocking was still well in the future,” Alvord wrote.

Once brown trout became established in a stream, stocking was no longer necessary because the fish reproduced naturally. Montana discontinued stocking browns in major trout rivers in 1954. Twenty years later, the state discontinued stocking rainbow trout in



streams and rivers after a study showed that planted fish disoriented wild trout and made them vulnerable to predators and anglers.

#### Browns today

Brown trout are now broadly distributed in Montana. Most swim in the state's southwestern region, east to the island ranges around Lewistown, in Fort Peck Reservoir, in the Tongue River above Miles City, and throughout the Yellowstone watershed to Billings, including the fabled Bighorn River. In western Montana, the Clark Fork drainage also holds browns. Because of their preference for slightly warmer water, the species is scarce or absent in chilly mountain lakes and streams.

Browns can survive in waters too warm or turbid for native westslopes and bull trout. They typically thrive in an optimal temperature range between 55 and 65 degrees but can survive in water even as warm as 80 degrees—which is why anglers often see them mixed in with warmwater species like goldeye and smallmouth bass in the middle reaches of the Musselshell, Yellowstone, and Tongue rivers.

**ANGER ISSUES** A brown trout on Rock Creek is released after attacking a Clouser Minnow. During the fall spawning season, browns become increasingly territorial and go after streamers and lures.



**TROUT TRACKS** From 1871 to 1940, the U.S. Fish Commission delivered brown trout and other fish on specially designed train cars to Montana and other states, as well as to private groups and individuals. The cars had water tanks, aeration devices, cooling systems, and bunks for the attendants. Recipients would wait at the station to pick up fish and stock them into local rivers or ponds. In 1940, the commission was abolished when it became part of the newly created U.S. Fish & Wildlife Service.



# The Saga of Old #134

## Following one big brown through the years

By Jerry Wells

[This article originally ran in Montana Outdoors in 1981. Jerry Wells was an FWP fisheries biologist, regional supervisor, Land Program administrator, and frequent contributor to Montana Outdoors.]

The old boy wasn't always known as #134. Before an Indian summer day in September 1970, he was anonymous.

Just another 2-year-old brown trout, hardly a unique figure in the Big Hole River. He lived in the Red Tail Hole in those days, just up the river from the McCullough Ranch, south of Melrose. Matter of fact, I think he still lives there—but I'm getting a little ahead of things.

It was the first autumn that this brown trout would spawn, the first chance to pass on that genetic information passed down to him from his ancestors. Ancestors that stretched all the way back to Europe, home of his species. It was also the last day he would remain anonymous. On that warm September afternoon, an electrofishing crew from the Montana Department of Fish and Game worked its way down from Melrose to Brown's Bridge. They captured this brown trout and put him in a tank with others of his kind. The fish were measured, weighed, a small edge of a fin clipped, a few scales taken from beneath the dorsal fin; and then they were released. The information collected would be used to assess growth rates and population size. The fish were also tagged with individually numbered blue plastic tags, inserted just behind the dorsal fin, which would be useful later in assessing fisherman harvest and fish movement.

Our friend was 13.5 inches long and weighed 1.04 pounds. His blue tag number was 134.



MATCHING THE HATCH - BROWN TROUT, BY MARK SUSINNO

That was the fall of 1970. Many events cast their shadows across the Big Hole and its trout population before we saw #134 again. Reichle Dam was proposed by the Bureau of Reclamation, and again more recently by the Army Corps of Engineers: a dam that threatened to impound a good portion of the blue ribbon section of the Big Hole, and forever change the character of this wild, free-flowing river. (The dubious economic value of this project moved it onto a back burner in the early 1970s, but the proposal is far from dead.)

In 1973, snowpack in the Big Hole drainage was very low and the river went to a stage of extremely low water during the summer irrigation season; in August, near the mouth of the river, flow actually ceased. Upstream near Melrose, low flow and high water temperatures resulted in low oxygen concentrations and very adverse conditions for trout. Whitefish were observed dying throughout the river. In 1977, snowpack was again low. Spring rains prevented catastrophic dewatering of the lower river, but the fish population experienced the lowest flow since 1973. These were hard times for trout. And then, on a rainy September morning in 1977, during our first electrofishing run of the fall, we captured #134.

Again he was in the Red Tail Hole, not far from where he had been released seven years

earlier. He was now 9 years old, ancient in a species where 5 or 6 denotes a graybeard. He was 18.7 inches long and weighed 2.34 pounds, a beautiful male brown trout with lower jaw (kipe) grown out in preparation for spawning. For nine years he had endured all that the Big Hole had to offer. He had survived low summer flows, winter ice, and untold numbers of fishermen. We released #134, awed by his longevity and certain we would never see him again.

A year later, on another Indian summer day in early October of 1978, we made our last electrofishing run of the season on the Big Hole. Flows during that summer had been excellent and the trout had thrived—including #134, whom, to our complete amazement, we captured again. The year had been good to him, and he had gained nearly half a pound. He was now 10 years old and 18.9 inches long, weighing 2.88 pounds. He bore a hooking scar on his left upper jaw. Perhaps he had been caught and released by a fisherman during the salmonfly hatch the preceding June. By now the old boy was pretty special to us, and it was with a sense of respect that we gingerly released him once again into the Red Tail Hole.

The winter of 1978-79 was the coldest on record in Big Hole country. Temperatures plummeted to 50 below zero and stayed well below

zero for weeks. Icing conditions on the river were severe. Spring came late. It was a snowy morning in early April of 1979 when we began our spring electrofishing. To make a long, cold story short, we captured #134 again.

He had made it through another winter, a tough winter, and he was 11 years old, an unbelievable age for a brown trout. But the winter had been hard on him, and he had lost weight: now 19 inches long, he was down to 2.44 pounds. Eleven years in the Big Hole and our friend had taken all that the river had given him. He had thrived and he had suffered. He had spawned for nine seasons and he had seen three fisheries biologists come and go. For 11 springs, red-tailed hawks had returned to nest and fledge their young in the cliffs above his hole, and still he endured; and so has the free-flowing Big Hole.

Well, we didn't capture old #134 in the fall of 1979, nor did we get him in the spring or fall of 1980. We looked for him and we wondered about him. Did a fisherman catch him, or did he up and die on us? I don't know the answer. But the ice is going off the river, and on St. Patrick's Day we are going to start electrofishing, and that night we will stop at Joe Grogan's Bar in Glen—and I hope we can tell Joe that old #134 is still around. He'd be 13 now. 🐟

Browns thrive where there is “overhead cover” such as undercut banks, overhanging bankside willows, aquatic vegetation, tree root wads, and logjams. Where rainbows might be in a sunny shallow riffle feeding on nymphs, a brown will be tucked back deep under a shaded bank. Rivers like the Ruby and Jefferson often have these features, but when prolonged drought and reduced, warmer flows draw water away from the banks—exposing bottom cobbles, sand, and mud—browns must persist in the open and sunlight they try to avoid, exposed to predators like ospreys, bald eagles, river otters, and anglers.

Brown trout often coexist with rainbows and other trout species in the Yellowstone, Missouri, Madison, Bighorn, Smith, Jefferson, Ruby, Big Hole, Beaverhead, and Bitter-root rivers, and in Rock Creek, south of Missoula. But the proportion of browns, rainbows, and other trout in a given river stretch varies widely and can fluctuate. The Mallard's Landing FAS stretch of the Bighorn River, for example, contained twice as many rainbows as browns in 2022, but in 2019 and 2020 browns greatly outnumbered rainbows. On that river, releases from Yellowtail Dam in the fall, when brown trout spawn, greatly influence numbers of the species from year to year.

On the Missouri River near Wolf Creek,

FWP survey data going back to 1982 shows an average of 563 browns and 3,387 rainbows per mile. The Missouri, with its broad runs and relatively little overhead cover, doesn't have as much brown trout habitat as, say, the willow- and alder-choked Beaverhead.

Generally, browns are not as prolific as other trout species and thus have lower population densities.

According to Robert Behnke, author of *Trout and Salmon of North America*, brown trout are relatively long-lived, surviving approximately 4 years in small streams, 5 to 12 years in rivers, and sometimes 15 or more years in lakes (see the story of ancient #134 at left). If a brown lives long enough to reach 12 to 15 inches, its diet begins shifting from aquatic and terrestrial insects to a meatier diet of minnows, sculpins, crayfish, fish (including trout), and the occasional mouse, frog, lizard, snake, or even duckling. A new state record of 32.42 pounds (37 inches long) was set in 2021 on the Marias River, breaking the long-standing record from 1966, a 29-pounder taken from Wade Lake. Rainbows get big, too, but on average brown trout grow to larger sizes in most waters.

Trophy-hunting brown trout anglers toss streamers, spinners, spoons, or even deer-hair mice, especially during the fall spawning season, when browns become

**READY FOR ANYTHING** A fly angler casts to pocketwater on the Madison River near Three Dollar Bridge Fishing Access Site, near Cliff Lake. Brown trout often coexist with other trout species, as they do with rainbows on the Madison. But browns are not as prolific as other species, so in most waters they have lower population densities.



JOHN JURACEK



particularly aggressive. Some anglers fish after dark wearing a headlamp.

### Beautiful, big, and elusive

In addition to their size, brown trout are renowned for their beauty, the buttery brown body flecked with red and black dots. Many (though not all) anglers also like that browns are especially wary and more challenging to catch than other trout species. One reason may be that the species was pursued by anglers for centuries in Europe, and natural selection weeded out the gullible specimens. Writes Behnke, “Generally the rank for anglers from easiest to hardest to catch is: cutthroat trout, brook trout, rainbow trout, brown trout...In rivers where both rainbow and brown trout occur in about equal numbers, typically three rainbow trout are caught to every brown trout.” FWP studies of hook scars on jaws of trout in western Montana found the scarring rate for browns (indicating they had previously been hooked) was just 10 percent, much lower than other, more deceivable trout species.

### Recent concerns

FWP fisheries biologists have mixed feelings about brown trout. Populations here are wild and self-sustaining, and the species

is popular with anglers. Yes, the fish are non-natives that outcompete native cutthroat and grayling, “but they don’t hybridize with cutthroat, making them less a threat to native populations than rainbows,” says Pat Saffel, FWP regional fisheries manager in Missoula.

Because browns don’t need water quite as cold as what other trout require, biologists hope the species will be more likely to survive global warming. Yet in recent years, brown numbers have tanked in some rivers. In 2023, biologists reported that trout numbers in parts of the Big Hole, Jefferson, and Ruby had dropped to historic lows. For example, densities on the Melrose section of the Big Hole declined from a peak of more than 1,800 per mile in 2014 to fewer than 500 in 2023.

Though numbers rebounded slightly in 2024, FWP is working with Montana State University on a multiyear study to figure out why the fish are doing so poorly. It’s likely that low, warm water is one of the culprits. “It may be that brown trout are not able to withstand climate change as well as we thought they would,” says Mike Duncan, FWP regional



**GO BIG OR GO HOME** Above: To catch monster browns, many anglers throw big flies like these Sex Dungeons, shown smaller than actual size. Below: Robbie Dockter of Conrad holds the state record brown trout. He caught the 32.42-pounder on the Marias River in 2021.



**TROUT OF TOMORROW?** Left and above: Brown trout can tolerate warmer and murkier water than rainbows and especially native cutthroat and bull trout. But like all salmonids, they do best in cold, clean rivers. Will Montana’s streams be able to sustain those conditions in the future?

fisheries manager in Bozeman.

In other streams, brown numbers are booming. On the Bitterroot River and Rock Creek, FWP biologists have documented a long-term increase in brown numbers and an expansion of the species upstream, which could be due to warming water temperatures in the headwaters.

At the same time, Saffel says there’s been an “all-out collapse” of the brown population in the Clark Fork River upstream from Deer Lodge. Reasons for the decline are not clear, but it appears to be more than low flows and the toxic mining wastes that limited trout numbers in the past. Bulldozers and backhoes are removing the waste that was dumped a century ago from Butte copper mines and Anaconda smelters, and river

habitat is healing from the disruption.

As with all Montana salmonids, global warming is a growing threat. “Snowpack is essential for maintaining cold stream waters, and there’s been a pretty substantial decline in snowpack over the past 50 years,” says Dr. Tim Cline with the Department of Ecology at Montana State University. Other trout threats caused by warming temperatures are drought, wildfire, and silt-laden mountainside flooding that often occurs after fires burn off ground vegetation. “In the decades to come, I can see Montana losing a full one-third of its trout habitat,” Cline says.

FWP is helping the beleaguered fish by protecting and restoring habitat through its Future Fisheries Program. Department staff

are also working with willing farmers and ranchers to modify irrigation in key stretches so that more water is available for trout in mainstem rivers and spawning tributaries (See “Our Point of View,” page 5).

Despite the threats they face, browns are a hardy fish. They can survive in streams where other trout die out and are less susceptible to whirling disease, having evolved with and adapted to the disorder in their native Europe for centuries. When whirling disease ravaged rainbow trout populations on the Madison River during the late 1990s and early 2000s, browns emerged unscathed.

Browns have proved over the past century they can survive and thrive in Montana. They aren’t native to this state, but it seems like they are doing all they can to stay here. 🐟

CLOCKWISE FROM TOP LEFT: THE FLY CRATE; PATRICK CLAYTON/ENGBRETSON UNDERWATER PHOTOGRAPHY; LISA SAWARD; SIERRA DOCKTER