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## TROUT ARE WILDLIFE TOO

*In cold headwaters all across America, populations of unique and beautiful fish are winking out. Fish managers are fighting to save them, but anglers resist and the environmental community remains disinterested.*

By

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**On August 6, 2002,** the PMDs started coming off Armstrong Spring Creek at 10:00 a.m. PMDs (pale morning duns) are delicate yellow mayflies that shuck their larval skins on the surface and, if they don't vanish into the maws of trout, dance around like garden fairies, with sunlight flashing on translucent wings. A spring creek leaps full grown from rocks or wet earth. Armstrong, the most famous spring creek in the world, is collected by the Yellowstone River in Montana's Paradise Valley.

As I stood in the icy flow, nighthawks and swallows dipped from the cloudless, mountain-rimmed sky, picking off emerging PMDs, while all around me large trout were finding plenty of their own, bulging through the surface and wagging flaglike dorsal fins. These were browns and rainbows that, at the sting of my hook, somersaulted into the air and raced off on long runs, most of which ended with a sickening snap because my fluorocarbon "tippet" was so fine it broke at 1.5 pounds of pressure. Anything heavier and the trout would refuse my PMD imitation. As an angler I've been trained to measure the quality of game fish by this kind of strength and selective feeding behavior. But as a naturalist I'm conflicted. Browns evolved in Europe, rainbows in the Pacific Northwest. Both were unleashed decades ago in the interior West by managers blind to the beauty and importance of native ecosystems.

The trout that belong here are cutthroats. Rainbows hybridize with them, swamping their genes. Browns displace them, as do brook trout (imported from the East). Of the 14 named and unnamed cutthroat subspecies, two are already extinct, and the rest are in desperate trouble, pushed into river tops where they're protected from alien invaders by waterfalls or manmade barriers but where they're also genetically isolated.

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Late in the day, when the PMDs were gone, I was delighted and astonished to catch a Yellowstone cutthroat, the native subspecies of this river system. It slurped my beetle pattern on a sloppy drift, and it came in easily, shaking its head and rolling. All wild trout are beautiful, but cutthroats mesmerize me. This one glowed with the gold of autumn aspens and the pinks of a Big Sky sunset. Its flanks were flecked with obsidian spots that got bigger and more profuse toward the tail, and under its jaw were the two scarlet slashes that give the species its name. Cutthroats are hardwired: They're not selective, because they evolved in sterile water where they couldn't afford to let something drift by that might have been a bug; and they never developed the kind of energy-draining musculature of other trout. When the state of Idaho sought to restore Yellowstone cutts to Island Park Reservoir, one prominent guide—an educator of local anglers—declared: "They're stupid, and they fight like slugs." So fierce was public opposition that the project was abandoned.

In the Yellowstone drainage, however, cutthroats are making a comeback, because trout managers of the Montana Department of Fish, Wildlife and Parks are the most progressive in the nation. They've leased water rights on tributaries dewatered by irrigators. Now native trout are spawning in these rivers again.

Montana has learned that hatcheries, which the angling public underwrites with license fees and a federal tax on fishing tackle, are among the greatest threats to wild (stream-bred) trout, whether naturalized or native. Genetic diversity, by which trout adapt to different habitats in large river systems, is bred out of hatchery trout. They are selected for domesticity, warped by inbreeding. They survive in the real world only long enough to suppress and displace wild trout. Moreover, hatcheries spread pathogens such as whirling disease, imported from Europe with frozen pike and to which North American trout lack natural immunity. But when game and fish departments try to phase out hatcheries, anglers—unwilling to learn the truth—scream to their legislators, who threaten budget cuts. "If you cross a sacred cow with a military base, you get a fish hatchery," says Bernard Shanks, the gutsy former director of the Washington Fish and Wildlife Department, who tried to de-emphasize hatchery production.

In 1970 Montana stopped stocking hatchery fish (browns and rainbows) in a section of the Madison River where these species had long been established and which is far too big for native-trout restoration. Four years later large fish (three years and older) were up 942 percent. The study horrified anglers and hatchery bureaucrats, who wanted to believe that stocking was the key to trout abundance. In apparent sabotage, the study area was stocked in 1972 (presumably with trout purchased at a private hatchery) and the towing hitch on the department's truck was loosened so that boat and trailer parted company on the highway. The illegal stocking only corroborated the earlier data, because immediately the brown trout biomass dipped by 24 percent, then, with two more years of no stocking, jumped back to where it had been. The study convinced Montana to cease all trout stocking in moving water. As a result it is now the number-one trout-fishing destination in the nation.

In 1998, as the U.S. Fish and Wildlife Service and the state of New Mexico were preparing to reintroduce pure Gilas to Black Canyon Creek, they found rainbows, browns, and cutthroats (alien to the region and of undetermined race). The project had been sabotaged.

In most habitats, trout are not easily seen. Except where they are conditioned with pellets, they don't come to feeders. While they're every bit as colorful as birds, they're cold and slimy, and most of the public remains unmoved by their plight. Groups such as Trout Unlimited and the Federation of Fly Fishers are winning important battles for native-trout restoration, but they're outnumbered and outshouted by the gull-like masses for whom trout genes (and even trout fins, abraded into fleshy stumps by the sides of hatchery raceways) have no relevance, for whom a trout is not part of a native ecosystem but a slab of meat.

Anyone seeking the answer to "What good is a native trout?" need not look beyond Yellowstone National Park. Eighty percent of the world's remaining pure Yellowstone cutthroats abide in 87,000-acre Yellowstone Lake, spawning in at least 59 feeder streams. Today Yellowstone cutts fuel aquatic and terrestrial ecosystems in and around the park the way sockeye salmon fuel ecosystems in southern Alaska. But it wasn't always this way. Thirty years ago the park's native trout had been pretty much wiped out. Dead cutthroats—caught, killed, and discarded by tourists—comprised the main item in park garbage cans. Grizzlies, sustained by this and other garbage, had been reduced to circus bears. Then, in the early 1970s, a smart, tough biologist named John Varley (who now directs the park's Center for Resources) led a

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successful effort to require anglers to release most of their trout. The initiative was far more contentious than wolf reintroduction (which Varley also led). Outfitters charged the park with plotting to "put them out of business." Outdoor writers reported that the feds planned to end all sportfishing. Fisheries managers parroted the old wives' tale that "you can't stockpile trout."

When the Craighead brothers were studying grizzlies in the 1960s, they never saw a bear take a fish. By 1975 bear activity was being observed on 17 of the lake's 59 cutthroat-spawning streams. Now bears work at least 55 of those streams, and one research team has observed a sow with cubs averaging 100 fish a day for 10 days. In 1988 there were 66 nesting pairs of ospreys in the park; by 1993 there were 100. While in the park, white pelicans get almost all their nourishment from cutthroats, consuming an estimated 300,000 pounds a season. In all, Yellowstone cutts provide an important food source for at least 28 species of birds and mammals.

Last July 18 I stood in the swollen Yellowstone River in the park's Hayden Valley with the current piling up around the top of my chest waders. I fish here not to "fight" native trout but to connect with them and their world. Sometimes the insect hatches are so prolific that the fish don't bother to rise; they just hold in the current with their heads out of water and, like drunks under wine spigots, let the river's richness fill their bellies. The nutrient flow starts with the sulfurous fumes that bubble white and pungent from underwater vents; cycles skyward with squalls of caddises and mayflies; drops back to the trout; then out onto the banks with the otters and minks; up and south with the eagles and ospreys; seaward with the loons and pelicans; high into the stream-etched Absarokas with the massive spawning run; and, finally, into the gullets of grizzlies.

The cutthroats of Yellowstone Lake, restored by the no-kill fishing regs that were going to ruin the outfitters, now generate about \$36 million a year for them and other local businesses, and the figure doubles when you include other restored park waters. But now Yellowstone's trout-based ecosystem and trout-based economy may collapse again. Lake trout, unavailable to wildlife because they live and spawn in deep water, have been illegally stocked in the lake, and wherever these large, voracious predators have been superimposed on native cutthroats, the cutthroats have been eliminated.

When a fisherman caught the first lake trout on July 30, 1994, the news made Varley physically ill. Unless the park can permanently suppress the aliens (elimination is out of the question), Yellowstone cutthroats are doomed in the lake and probably the world. In a never-ending project that leaves virtually no money for other trout restoration, crews on two large boats set gill nets at depths favored by lake trout. They're getting good at it; in 2001 they killed 15,000 lake trout with an accidental cutthroat bycatch of only 600. But there are alarming indicators. On Clear Creek the cutthroat spawning run has declined from about 12,000 to 8,000 fish; there's a corresponding decline at sample stations in the lake.

Particularly discouraging is the ignorance of sportsmen. Facing a future no less bleak than the Yellowstone cutthroat is the westslope cutthroat. Ambitious restoration projects are under way in Montana, where pure westslopes have been driven out of something like 75 percent of their historic range. But the most ambitious westslope-restoration project ever proposed has been derailed for the past three years by a sportsmen-endorsed property-rights group called the Public Lands Access Association. The group's president, Bill Fairhurst, threatened to sue the state in federal court on the grounds that it would "pollute" public water with the safe, selective, short-lived fish poisons with which it plans to remove the brook trout, rainbows, and hybrid cutthroats that infest 77 miles of Upper Cherry Creek, in southwest Montana. What's really bugging the association and its allies is that 85 percent of the project area is owned by media mogul and native-ecosystem champion Ted Turner, who has offered to pick up \$343,350 of the \$475,000 cost. Like the previous owner, Turner doesn't invite the public onto his land, although the Montana access law permits anglers to wade Cherry Creek.

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In January 2002 Fly Rod & Reel magazine, where I serve as conservation editor, recognized Turner's commitment to native trout by making him its Angler of the Year, thereby eliciting the biggest blizzard of nastygrams we've seen in our 23-year history. I had "a political agenda," I'd done it for money, I was a "snot nose," a "moron," a "nasty bully," a "nature Nazi," an acolyte of "Hanoi Jane," an espouser of "vitriolic leftist environmentalism." "I see your magazine is lining up lock-step with the wild-animal-rights fly-fishing crowd that Left Wing Ted [Turner] leads and which appears to be taking over the leadership of Trout Unlimited and the Federation of Fly Fishers . . ." wrote Bruce Cox of Springdale, Pennsylvania. "I am completely opposed to the wild-at-any-cost perspective of this left-wing animal-rights crowd and to wit will . . . politically align myself with anti-wild-fish groups and politicians."

Preserving Cherry Creek's alien and mongrel trout was the priority of most readers we heard from. The fishing was already good—why change species? Anglers had been programmed by the mass-circulation hook-and-bullet press, particularly Outdoor Life magazine, which had attacked the project with an article rife with misinformation entitled "Playing God on Cherry Creek." When the editors invited readers to vote for or against making Cherry Creek a sanctuary for westslope cutthroats, 98 percent voiced opposition.

In the late 1980s the Idaho Department of Fish and Game announced that it would cease polluting the Big Wood River with hatchery trout. But to appease the masses, which had threatened legislative intervention, the department kept stocking a few token fish. Idaho also went to wild-trout management on the Teton River but found it necessary to buy a four-acre gravel pit—safely isolated from the river—into whose seepage it poured a gravy train of hatchery fish. This direct dump-and-catch approach proved so popular that the department now does it all over the state.

On Henrys Lake, an important sanctuary for Yellowstone cutts, Idaho Fish and Game had been stocking rainbow-cutthroat hybrids because they fight harder. But in 1976, when managers announced they would stop stocking the lake with manmade mongrels, anglers threw a hissy fit and got the legislature to hold hostage the department's budget. So today the stocking of Henrys Lake continues, but with sterile "triploid" rainbows, which have three sets of chromosomes instead of the normal two and which hatchery technicians produce by heat-shocking the eggs. Despite the wastefulness and tastelessness of this strategy, native cutthroats in Henrys Lake and elsewhere are much safer than they used to be. Idaho is more progressive than most states; still, it was only in 2001 that it fully implemented a policy of not stocking viable hatchery fish on top of wild populations.

Environmentalists are no more enlightened than sportsmen. In October 1997 the California Department of Fish and Game poisoned alien pike out of 4,000-acre Lake Davis in order to protect the endangered steelhead trout and chinook salmon of the Sacramento and San Joaquin river systems. The poison of choice—rotenone, the single most important tool of native-trout restorers—is derived from derris root. It is short-lived, applied at only 0.5 to 4 parts per million, and, after 69 years of use by fish managers, has not been seen to harm or even affect a human. Still, would-be protectors of water quality mounted vicious protests. They held all-night candlelight vigils, chained themselves to buoys, cursed, wept, and marched around the lake with placards that said things like "Burn in Hell, Fish & Game!" For crowd control the state deployed 270 uniformed officers, including a SWAT team. Now that pike are back in the lake, possibly because of sabotage, the state is too frightened to use rotenone again. Instead, it is proceeding with halfway measures, such as explosives, that can only suppress pike, not eliminate them.

Alpine lakes infested with hybrid cutthroats in Montana's Bob Marshall Wilderness are dribbling alien genes into pure westslope cutthroat populations in the Flathead drainage. To keep westslopes off the endangered-species list, the state's Fish, Wildlife and Parks department proposes to apply rotenone to a dozen of these lakes, then stock pure westslopes. But instead of rallying to the defense of this icon of American wilderness, the group Wilderness Watch is doing its best to kill the project, making ridiculous, untruthful pronouncements such as "Poison has no place in wilderness stewardship."

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Managers create demand for hybrids just by supplying them. In Lake Superior, restoration of coasters—a race of giant brook trout—is finally getting under way. Ontario is doing great work. So are the Chippewa Indians. Minnesota is making a reasonable effort, but Michigan and Wisconsin are endangering the program by stocking Lake Superior with "splake," Frankenstein fish produced in hatcheries by crossing female lake trout with male brook trout. Not only do splake compete with coasters, the average angler can't tell them from coasters and winds up killing the latter. When I asked Wisconsin managers why they weren't doing more for coasters, I was told that the state has decided there's nothing special about them, that "a brook trout is a brook trout." Such talk infuriates Robert Behnke of Colorado State University, the world's leading authority on trout and the man who rediscovered Lahontan and Bonneville cutthroats after they'd been declared extinct. "A grape is also a grape," Behnke wrote me. "One species of grape (*Vitus vinifera*) is used in virtually all wine made in the world—reds, whites, best and worst. The grape-is-a-grape point of view is the most simplistic and would save money for wine drinkers, because the cheapest wines would be the same quality as the most expensive wines. I wouldn't want some of the managers [you] quote selecting wine for me or, for that matter, being in charge of fisheries programs where subtle genetic differences that may not show up in genetic analysis can be important." I can't think of a finer rebuttal to the superstition that a "trout is a trout" than the southern Appalachian brook trout, which I first encountered in Great Smoky Mountains National Park. Fisheries biologist Matt Kulp had placed me in charge of measuring and releasing fish he'd just netted from a high-elevation rill, after briefly stunning them with an electric shock from a backpack generator. A big coaster weighs eight pounds, but the biggest Appalachian brook trout I handled that day—"huge" by park standards—weighed about four ounces. In sunlight, muted by the kind of cloud bank that gave these mountains their name, the belly of the little fish glowed campfire orange. The markings were different, too. Coasters and the brook trout of my Yankee woods have two or three rows of red spots along their chestnut flanks, but this one had seven. The dorsal fin was proportionately larger and marked with strange but lovely black stripes. Underfins, with the familiar ivory trim, seemed larger, too.

Rainbows, stocked by the park until 1976, have pushed the natives into the high country. So Kulp and his associates have been shocking the aliens and releasing them below natural barriers. Now that teams are working down into bigger water, shocking doesn't work. They need Antimycin, an incredibly selective and expensive fish poison that has a half-life of 40 minutes and is applied at 8 to 12 parts per billion. After rainbow advocates and chemophobes shrieked like scalded hogs, Kulp and his boss, Steve Moore, undertook exhaustive outreach. One sportsman, whom Moore thought he was literally going to have to fight, now admits to being "dead wrong," and, as with so much of the public, is utterly captivated by the South's native trout. So far the park has given 11.1 miles of stream back to the fish that belong here, and it's looking to restore an additional 40 miles, about all that's practical with current technology. Since the park has 750 miles of stream, there will be no shortage of rainbow fishing.

Managers have achieved another stunning success with the Gila trout of New Mexico, America's only endangered inland trout. I'd given up on the species when I inspected its habitat in 1994. In Black Canyon Creek, one of two perennial streams in the Aldo Leopold Wilderness, I encountered cattle in the water, knocking down the banks and defecating. So tolerant of cattle was the local Forest Service ranger that when I stopped in to see her I found cow pies on her office steps. When I asked Brub Stone, then a director of the Gila Fish and Gun Club, why his group opposed Gila trout restoration in Mineral and Willow creeks, he said: "They're using some kind of a fancy-name poison [Antimycin]. . . . Years ago they said the breast implant would not hurt women. My God, it's killing them, isn't it?"

**In 1998**, as the U.S. Fish and Wildlife Service and the state of New Mexico were preparing to reintroduce pure Gilas to Black Canyon Creek, they found rainbows, browns, and cutthroats (alien to the region and of undetermined race). The project had been sabotaged. Another stream, also cleansed of aliens, was apparently sabotaged. Grant County tried to kill the project—by preventing the use of Antimycin—with what it called the Pollution Nuisance Ordinance Act. Because of this ordinance (as well as the fact that managers wanted to avoid the hassle of evacuating, holding, then restocking rare dace and suckers) a 20-man crew equipped with backpack shockers removed 376 alien trout from Black Canyon Creek over the course of 88 days, a job that would have taken minutes with Antimycin. The reintroduced Gilas have been reproducing for the past two years. The Forest Service has kicked out the cows, and streambanks are healing. In 1970 Gila trout survived in about 12 miles of stream in 4 drainages; now they inhabit about 80

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miles in 13 drainages. "As far as we're concerned, we've satisfied the downlisting criteria," the Fish and Wildlife Service's Jim Brooks told me.

There's enough momentum in native-trout restoration that it might succeed nationwide if the environmental community gets behind it. The old-guard managers who flung trout around the country like Johnny Appleseed on applejack are dead, and, with only a few exceptions, their replacements are fiercely committed to natives. But most of these young scientists lack Moore's and Kulp's communication skills. For instance, they attempt to generate excitement for their work by pointing out that native trout are "indicator species," thereby implying that their worth is right up there with, say, a \$200 water-sampling kit.

Managers need to quit trying to figure out what native trout can do for us and attempt a new approach. Maybe it starts with a simple statement that these fish are priceless works of art that need to be protected for themselves, for the species that need them, and for people who cherish them for what they are and because they are.

*On August 8 the Federation of Fly Fishers, at its annual conclave in Livingston, Montana, presented Ted Williams with its Aldo Leopold Award for "outstanding contributions to fisheries and land ecology."*

### **WHAT YOU CAN DO**

Contact your state's game and fish agency and ask what group is doing the most for native trout in your state or region. Then join or, better yet, volunteer.

Educate yourself about native trout species. A good place to start is Robert J. Behnke's Trout and Salmon of North America, from which Joseph R. Tomelleri's stunning illustrations are taken.