



# A RUN TO RESTORE RIVER LIFE

BIOLOGIST, PHILANTHROPIST AND ULTRARUNNER  
ANDREW TODD HELPS SAVE NATIVE TROUT THROUGH  
TRAIL-RUNNING-AND-FLY-FISHING EVENTS.

BY MORGAN TILTON

# SPARSE SNOW REMAINED

**ON THE FLANKS OF THE NEEDLE-SHARP PEAK, TIJERAS, 15 MILES SOUTHWEST OF WESTCLIFFE, COLORADO. AN OUTDOOR MECCA, WESTCLIFFE IS ONE OF THE HIGHEST-ALTITUDE CERTIFIED INTERNATIONAL DARK SKY COMMUNITIES IN THE WORLD. UNTIL A FEW WEEKS PRIOR, NO LIVE FISH WERE SWIMMING IN THE RUNOFF: THEY WERE DEAD. THE GNEISS FORMATION REACHED TOWARD THE SKY LIKE A SHARK FIN BETWEEN KNOBBY RIDGELINES OF EXPOSED, CRYSTALIZED MAGMA, AND THE GLACIER-CARVED VIEW TOOK TRAIL RUNNER ANDREW TODD'S BREATH AWAY.**

The research biologist and water quality specialist stood at the top of Music Pass, nearly 12,000 feet above sea level and a mere mile from its namesake trailhead. Todd was more than familiar with the basin: He'd spent most of his personal and professional life exploring the Sangre de Cristo Range, which extends 75 miles from Santa Fe, New Mexico, to Salida, Colorado. The remote, rugged chain is perhaps best known for juxtaposing the eastern edge of North America's highest mounds of sand: Great Sand Dunes National Park and Preserve.

Under his microscope, Todd knows these steep slopes as one of the most ideal habitats for native fish in the country, a place where species that lived historically in a body of water and were not introduced by humans can thrive. As he descended several hundred feet and started power hiking the switchbacks up the swooping bowl to Lower and Upper Sand Creek Lakes, he shook his head, smiling in disbelief: After more than a decade of research, tremendous financial backing and an initial reintroduction of the area's native fish, the population of Rio Grande cutthroat trout was showing signs of life.

Last August 24th, nearly 10 years after Todd started exploring the area's pristine tributaries to determine if native fish could thrive, a helicopter

flew overhead with a hanging bucket to stock the two high-altitude lakes with hundreds of plump sub-adult 7-inch Rio Grande cutthroat trout, one of three types of native trout in the Centennial State. Soon after, another thousand 2-inch fingerlings were dropped into each lake via an old-school airplane with a modified payload area to hold the water and fish. Eager to reach the lakes, Todd started to slowly jog. Above him, the two giant emerald

pools maintain a goldilocks temperature for aquatic life to survive and grow, and spawning conditions—where a creek deposits fine gravel and oxygen-rich water—to reproduce.

“Music Pass is spectacular, and when you're there, it gives you an idea of how impressive the watershed is—and that's the path forward. To identify big, defensible spaces with enough variability to weather some of the climate and environmental changes that are coming,” Todd tells me over the phone, a couple months after the successful, albeit controversial, multi-agency restocking process.

Change, even when scientifically backed, can be messy and hard to stomach. Phase one of the Sand Creek Restoration Project, completed a year prior to the reintroduction of Rio Grande cutthroat trout, entailed exterminating non-native fish. Workers from Colorado Parks and Wildlife (CPW), the National Park Service and Trout Unlimited flagged where fish were present in springs and seeps along 13-mile Sand Creek and its headwater lakes.

Sand Creek descends south and then curves west toward the Great Sand Dunes, where the water vanishes



beneath the surface of 34 square miles of fine sand, a natural protective barrier for the fish. Though the rugged area is sought by climbers, hikers and runners of the 14,000-foot peaks, the unkempt nature of many of the trails and absence of many navigable roads makes the mountain range harder to access, another positive attribute and barrier for conservation. In September 2020, more than 80 people bushwhacked along the creek banks and entered the water with helicopter-delivered boats, motors and 5-gallon barrels of Rotenone, a plant-based compound that is life-ending for gill-breathing organisms. Naturally, some local anglers who hiked out to toss their fishing lines were angered to see dozens of belly-up fish along the shore. But the alternative, especially in the long run, is even bleaker.

Native species are outcompeted or eaten by invasive species, or interbreeding leads to introgression, the transfer of genetic information from one species to another following their hybridization. That poor genetic stability can surface as reduced fitness, the transmission of disease or a decline of reproductive success, as first-generation hybrids can have high reproductive success before a rapid dropoff in future generations. Ultimately, introgression leads to endangered species and even extinction: many native fish can only exist in one environment and once gone, cannot be reestablished. Loss of species further exacerbates waning biodiversity: the functioning ecosystems that supply the earth with oxygen, clean air and water, plant pollination, agriculture and raw materials.

On the other hand, protecting native fish leads to a positive chain reaction: healthy fish populations typically mean that the entire aquatic environment is thriving. First sanctioned in a compact in 2003, the broad regional conservation project for Rio Grande cutthroat trout received renewed federal, state and organizational support a decade later, including the backing of tribal agencies. A public comment period raised no alarm bells (except folks vocalizing

concerns about the postponement of recreational fishing), and for several weeks anglers were allowed to capture unlimited fish in an emergency public salvage announced by the CPW. The conservation project was also financially supported by trail runners.

Nine years ago, Todd founded the Flyathlon, an annual trail running series that weaves in fly fishing and finishes with microbrews, three of Todd's favorite things. It's a riff on the traditional triathlon: run, fish, beer. Each participant fundraises for local trout conservation in the area's waterways, which is funneled into a nonprofit organization, Running Rivers, that Todd also launched.

To date, racers have fundraised nearly \$400,000 for restoration and education projects, including \$85,000 fundraised through in-person and virtual events in 2021. Flyathlon races are currently hosted in Colorado and Iowa, with Todd's hope of expansion to any community that is interested in hosting. Each destination's route meanders along a waterway, where participants stop at any point during the event to fish and capture a photo of their catch, which is submitted at the finish line. Their time is adjusted for size and species of fish, and there are various prizes. Todd sees the events as an opportunity to educate folks on native fish while building community and having a lasting positive environmental impact.

## FIRSTCAST

Todd's inaugural fishing experience was with his dad, Jim, on a creek outside of Aspen, Colorado. Jim, a pediatrician and infectious disease specialist, traveled to the ski town every year from their home in the Mile High City to attend a conference. Later, as a teenager, Todd, a lacrosse player, attended a 7-day outdoor leadership program that entailed backpacking in the Sangre de Cristos. The crew's route included summiting Humboldt Peak and Crestone Needle, two 14,000-foot peaks that

sit 2.5 miles as the crow flies from Upper Sand Creek Lake. Climbing those peaks influenced Todd's life trajectory; later in adulthood, he and his wife, Cassie, bought a cabin near the route.

The inaugural Flyathlon event was launched to the west of the range along Middle Creek, near the small town of Saguache. The course options range from 7 to 13 miles, and the creek is home to four different trout species: cutthroat, brown, brook and rainbow. Another event is located in Gunni-



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son, Colorado—the Lake Fork Flyathlon—and the third is the Driftless Area Flyathlon in Yellow River State Forest, Iowa. The onset of the pandemic necessitated a virtual event, which was so popular and successful for fundraising that it's continued.

Todd's passion for running arrived later than his love of fishing, as a way to get back into shape after he finished playing college lacrosse. He ran the St. George Marathon, which felt terrible, he recalls, but the meditative aspects

of running, especially during longer distances, attracted him and helped balance his graduate studies. He earned a master's degree and a Ph.D. in environmental engineering at the University of Colorado Boulder.

He wanted to work on rivers and streams with a focus on restoration. First, he worked for two years as a Contaminants Biologist for the U.S. Fish and Wildlife Service and helped to transition the Rocky Flats into a wildlife refuge. For the next two years, he

served as an Aquatic Specialist for Trout Unlimited. In 2007, he stepped into a position as a Research Biologist for the U.S. Geological Survey. For a decade, he hiked around remote waterways studying Rio Grande cutthroat trout around the Rio Grande River.

Beyond the stocking and competition of non-native trout, the Rio Grande cutthroat populations have declined due to water diversions and development, mining, intensive land-use and changes, overfishing and climate



change. Todd was trying to find dependable watersheds that could harbor the native fish as the climate warms, which leads to shallower pools, higher water temperatures and more extreme flow events that are not conducive habitats.

During such hiking days on the clock, Todd started trail running to high alpine lakes to cast a fishing line before running back to basecamp to enjoy a brew. The daily practice would later inspire the format of the Flyathlon.

## RUN, FISH, BEER

In 2013, Todd debuted the fish-run race alongside Colorado Trout Unlimited, and in 2016, decided to launch Running Rivers, a Colorado-based nonprofit that uses profits to support native trout conservation. Running Rivers has supported a myriad of projects, including trail restoration along East Middle Creek in the Rio Grande National Forest and educational signage about a recent Colorado River cutthroat trout discovery near Steamboat Springs. One of the earliest goals of Running Rivers was to support the first phase of the 2020 Sand Creek Watershed Reclamation project through a \$26,000 donation, funded by Flyathlon participants. The nonprofit plans to financially support phase two this year.

Another project created and installed Rio Grande cutthroat trout educational posters for schools, government offices and fly shops, as well as signage for trailheads in drainages where the species resides to help teach hikers, runners, hunters and anglers how to support and identify them.

The fish is eye-catching. Full of brilliant tones, the Rio Grande cutthroat trout's brass and vibrant red belly gradually transitions into a glittery green and gold backside with dark cheetah-like spots and a scarlet jawline.

To raise additional funds and educate folks in a creative way, Running Rivers launched an ongoing collaboration with local microbreweries dubbed the Rare Fish Rare Beer Project. The organization partners with conservation-centric brewers to develop limited-

edition craft beers with names and labels that celebrate a native fish in a backyard watershed. To date, they've released seven beers, including the Trucha Grande, a collaboration with Three Barrel Brewing Company, Laws Whiskey House and the Colorado Malt-ing Company. The brew celebrates the Rio Grande cutthroat.

When I ask Todd why native fish are important to the overall health of stream ecology, he tells me it's a question of morals.

"The Rio Grande cutthroat trout is currently located in 12 to 15 percent of its historic distribution. You could say, a trout is a trout. For me, it's more about, we should be doing what we can to keep biodiversity on the planet as long as we can. Biodiversity for biodiversity's sake is important, has value, and there is opportunity down the road—we don't know what that species might mean for humans," says Todd.

"Fundamentally, it's our obligation as scientists and as humanity to try to not extirpate all the things here on earth and to leave the planet like it was as much as possible. Settlers brought these other fish here. When I look at the species that have gone extinct over the last couple hundred of years, it drives me to keep native fish on the landscape for as long as possible."

Once a native species is restored, it can naturally repopulate and even become a source for future stocking in other habitats. This was the case with the grown Rio Grande cutthroat trout that stocked the two Sand Creek lakes; they were relocated from the neighboring Medano Creek drainage in Great Sand Dunes National Preserve, which was restored with the species in the 1980s. There are political nuances, too. If the Rio Grande cutthroat is listed as an endangered species by the U.S. Fish and Wildlife Service, then the federal government makes decisions rather than the state and local agencies. Ultimately, the responsibility is ours as trail runners and recreationists to maintain and advocate for the character of wilderness areas and preservation of species.

"In terms of conservation water-

sheds, we're looking for big interconnected systems that allow a buffer against events like drought and wildfire that we anticipate will become more extreme with climate change," says Todd. "You also want something well isolated from people. If your watershed is big but has a road running next to the river to the top, you can have people introduce invasive species unintentionally—or intentionally."

Ignited by lightning, the Medano Creek drainage, south of Sand Creek, burned in an intense fire in 2010. Six years later, the Hayden Pass Fire, which was also lit by lightning, took off in the Sangre de Cristos. In 2019, the lightning-caused Decker Fire impacted Rainbow Trail, a route east of Music Pass that parallels the range, and in recent years, has been host to the Sangre de Cristo Ultras, which now includes a 200-mile distance.

## OF FISH AND FIRE

More than three decades ago, when CPW led a similar reclamation project for Rio Grande cutthroat trout in Medano Creek, the effort was successful in part because the drainage is a "big interconnected waterway." A smaller watershed has the probability of burning more completely during a wildfire, and you can lose the unique genetic signature of a fish.

"Fire can result in impacts to receiving water in a number of ways. You can lose fish when the water rises in temperatures to kill the trout. Then ash comes in, which changes the chemistry," says Todd. "Because the Medano fire happened on a big watershed, there were 100% fish lost in certain sections—where there were 300 to zero fish—but wildfire is spotty when it burns, and won't take 100% of the watershed with the 100% same intensity, and the patchiness in a big watershed leads to pockets that remained intact for existing fishery, which can serve as source populations to repopulate the watershed once it stabilizes," explains Todd.

Today, Todd works as the Water Quality Section Chief for the Environmen-





tal Protection Agency, which includes overseeing a team that monitors and tests water quality. His region covers Colorado, Wyoming, North and South Dakota, Utah, Montana and 27 tribal lands. Though each state and watershed is unique, there are general issues across the western states including legacy mining and algae blooms. The rapid growth of dense algae in freshwater or marine water systems can make water toxic to humans and fish.

## BLOOM & BUST

Algae blooms grow thicker and faster in warm temperatures—exacerbated by climate change—and with excesses of certain nutrients like nitrogen and phosphorus from the waste of grazing cattle, or even human urine.

“In the last couple of years, anecdotally, with growth of the west and with COVID, and a lot more people getting into the woods, trailheads are jammed and people don’t always know or haven’t learned Leave No Trace principles,” says Todd. Some of the issues are infrastruc-

ture, such as a lack of toilets at trailheads. “But when you get more people in these ecosystems even if they’re digging catholes, and 300 feet from creeks, it can have an impact over time.”

If he sees a campfire going, which can lead to a wildfire if not put out properly, he swings back to make sure it’s completely put out. It can also help local trail organizations to be the eyes and ears on the ground and to report the impacts that you, as a trail runner, might see, he says.

“As other people are visiting and as I do runs over and over in the Sangres, it’s important for me to be observant and be part of the solution instead of the problem,” he says. He’ll take opportunities to share with anglers more information about the fish they catch, like which species is native or non-native, so they can release the Rio Grande cutthroat trout. At least for now.

Soon, the species should be thriving, and hopefully within five years, the trout should grow to be 15 inches long. Then local anglers can go catch and enjoy a harvest that’s ancient like the surrounding peaks. Todd

says, “Hopefully in June, we will see evidence of reproduction in the spawning habitat, where the creeks flow into the lake with a congregation of fish pairing up at the inlet.”

One of Todd’s favorite Flyathlon memories was the 2019 kids’ event held at Staunton State Park, another one of his most treasured outdoor places. Nearly 80 kiddos giggled and screamed as they ran and waddled past the start line, around Davis Pond and back to the volunteers serving root beer floats.

As the kids stopped to toss fishing lines with their parents and felt a tug on their line, they’d excitedly pull the fish to the surface and ask what it was: an opportunity for the next generation to share invaluable life lessons through the obstacles, rewards and camaraderie of trail running, fishing and the outdoors—a path that’s all connected to healthy native fish.

As Todd says, “What do we want to leave for our grandchildren? An opportunity to fish and the character of these precious places preserved the way they were before we came in.” <sup>TR</sup>

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