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The Glorious Greenback

7:30 am: April 28th wakes to find Colorado bathing under sunny blue skies that have not graced the area with this kind of gentle warmth in many months. This is the gentle morning glow that hints at the enduring heat soon to accompany the onset of afternoon. The small patches of grass, shrubbery, and uniformly placed trees that constitute the foliage of the city are buzzing in anticipation of the spring sun that is announcing its approach on this mild morning. It becomes clear, as we make our way into the country, that the captive plants of the city were merely imitating the exuberance that their wild relatives express in the fields and forests outside of town on this lively morning.

The Greenback cutthroat trout is the state fish of Colorado, the official icon of one of the world's most notorious trout-fishing destinations. An article published by the Greenback Cutthroat Recovery Team notes, "With origins from the Pacific Ocean, cutthroat trout are considered to be one of the most diverse fish species in North America and a symbol of wildness in the American West. For thousands of years, cutthroat trout evolved across the western U.S. into 14 recognized subspecies" ("Study Reveals Secrets of Colorado's Cutthroats" par. 10). This specific Greenback subspecies has a long, complicated, and mysterious history. It is due in part to this interesting history that the fish is now the state's official fish; it is also due to the fact that this specific subspecies is commonly believed to be the only trout that existed east of the continental divide in Colorado before the arrival of settlers. Essentially, this fish is thought of by many as the only fish that was in

this area of Colorado before humans were here. The strong desire to recognize and protect the fish's inherent right to the lakes and rivers that we call our own is bolstered by the fear of losing the species to extinction, and yet concern for the Greenback's survival (let alone wellbeing) is being dwarfed by a growing demand for natural resources.

2006: A study titled "Across the Great Divide: Genetic Forensics Reveals Misidentification of Endangered Cutthroat Trout Populations," employing state-of-the-art genetic forensic equipment and methodology, is published in the peer-reviewed academic journal *Molecular Ecology.* The study looks at a combination of historical records, DNA from preserved specimens, and DNA from living populations of Greenbacks to conclude that the vast majority, if not all, of what were up until then believed to be pure Greenback populations, were in fact not Greenbacks. Rather, the study suggested that what were thought to be Greenbacks were either Colorado River cutthroats or hybrids between the two. The study concludes, "our results suggest greenback cutthroat trout within its native range is at a higher risk of extinction than ever before despite conservation activities spanning more than two decades" (Metcalf par. 1). This was devastating news for a community that had worked so long and hard to re-establish the indigenous species to its native range.

<u>10:00 am:</u> In the true spirit of procrastination, it is perhaps only an hour before our arrival that we finally resort to contacting one of the local fly shops with an inquiry about the location of the stream that we have come to believe may be the last body of water to sustain a population of pure Greenbacks in the entire world. The man who answers the phone quickly exposes his knowledge of the creek and its well-protected contents not by divulging precious information, but as a result of his hesitancy to acknowledge the subject

of my questions. It is clear that he has absolutely no intention of allowing me any information that I do not already possess independently. We respect this effort at safeguarding the location of these preciously rare fish. Once his purposes have become clear and his knowledge on the subject established, it is safe to allow him access to my knowledge without having to fear that it will be openly disseminated by him. After we fully exchange our knowledge on the possible whereabouts of the fish, I thank him, hang up, and head toward the park-ranger station that he suggested as a place to get more specific information than he was able to provide.

One of the most confounding aspects of sorting out the history of the Greenback comes into play when records of fish-stocking programs in Colorado, dating back to the 1840s, are used to tell the story. The records are instrumental in going back and looking at the history of the fish and must be used, but they are so vast and so incomplete that it is hard to imagine that an accurate picture of the fish's true native range will ever be painted. According to Jim Scott, a writer for CU's *Colorado Arts and Sciences Magazine,* "Between 1889 and 1925, for example, the study showed that more than 50 million cutthroat trout from the Gunnison and Yampa river basins were stocked in tributaries of all major drainages in the state, jumbling the picture of native cutthroat strains in Colorado through time and space." This quotation is referring to a study published in 2012 that used a variety of historical records, in addition to genetic data collected from preserved cutthroat specimens dating back to the 1870s, to determine that only one population of pure Greenbacks still exists today.

<u>11:45 am:</u> As the sun continues to ascend into the sky we are drawing closer to the general area that we have been aiming at for some time. Now the suggested directions from

the man on the telephone come vaguely back into my mind, and we find ourselves winding up a canyon road under the tall sun, enjoying the scenery (which for some odd reason contained a large number of minimally clad men running along the road, and zero women), when we come upon the ranger station. It is Sunday and the station is closed: time to resort to the gazetteer. We determine that the drainage that we are hunting is not the one that we are in and resolve to rely solely on our own instincts and our trusty gazetteer from here on out. Another twenty or thirty minutes of driving finds us driving over the small culvert that contains the entire flow of the stream that we have been chasing. The dismay of finding our objective to be far too small to support fish is damped only by the desperate hope that somewhere shortly upstream, there is a diversion that draws most of the water from the stream, which might mean that there could be enough water upstream to sustain a population of trout. We double check the gazetteer; this is it, no question.

It is believed that the population of Greenback cutthroat trout that are said to inhabit this specific section of Bear Creek were not actually native to the stream before humans arrived in the area. That is correct; the last remaining population of trout that are "indigenous" to Colorado is thought to have come to its current location as a result of human interference. Records indicate that an early hotelier in the Colorado Springs area brought the fish to this tributary of the Arkansas River from somewhere in the South Platte River drainage; the fish were introduced here as a sort of tourist attraction. I find it curious that what are considered to be the last "truly native and indigenous" trout to Colorado arrived at their location by way of humans putting them there for our own purposes. How can an organism be native to an environment that it did not arise out of and did not evolve in conjunction with?

12:30 pm: There is nothing to do but begin to walk upstream, hoping that the diversion of water that we want to exist, and hope to find, is within a day's walking distance. We set out anxiously peering around every bend that the creek makes in loaded anticipation of a large diversion of water. The consecutive twists of the creek begin to pile on top of each other and blur into miles. The grade steepens and the trees get closer together as the canyon walls close in; the likelihood of there being more water higher up is diminishing as quickly as the trail is disappearing. As fatigue sets in and the voice of discouragement becomes louder than the babbling of the creek, it is time to stop walking. The sense of defeat can only be softened by trying to enjoy the experience for what it is, so I wander to a sunny opening near the water where I can soak in the sun's warmth while observing the water as it makes its way down the crowded ravine.

After the most recent study on these fish was published in September of 2012, the one that ultimately concluded that this Bear Creek population is the last one, fish were taken to the Leadville fish hatchery to begin again the whole process of breeding, raising and stocking tens of thousands of fish into various bodies of water throughout the state. This is not the first time that a population of trout was discovered and thought to be "pure Greenback cutthroat trout." According to Michael Young, since the late 1930s when the species was declared extinct, at least three different populations thought to be Greenbacks have been used as a base for stocking programs intended to bring the fish back from the brink of extinction (par. 4). Perhaps these Bear Creek fish are indeed true Greenbacks genetically speaking, or perhaps they are just another population of beautiful wild trout that are just as unique as any other self-sustaining population of wild trout, regardless of exact genetic lineage.

3:00 pm: As I catch my breath in the sun, I work toward appreciating and being grateful for the difficulty in reaching these fish. Although it is certainly a disappointment for me on this day, I finally have an idea of how this storied population just might have survived here for the last 150 years or so. Bear Creek is no recreational hot-spot destination; when compared with other creeks, valleys and forests in Colorado, it is rather small, ugly, steep, and close to populated areas. There is very little here to attract humans to the area. As I sit peeling an orange, pondering this peculiar area, and gazing into the water, I spot something abnormally red in one of the tiny pockets of calm water between miniature rapids. My first thought is that it is a piece of debris, perhaps a rusty can or other scrap metal, but as I continue to observe, it moves! It moves! Not like a piece of debris in the current, it is a fish! There is no doubt in my mind that this is the fish that I am after, and where there is one, there are sure to be more. I instantly pull out the collapsible fly rod that I have carried with me and begin to assemble it while walking excitedly up the narrow gully, looking for more flashes of red in the water. The problem is that the stream is so small and choked with thorny undergrowth that it will be impossible to get one of my flies to the water. I continue upstream, hoping to find a clearing or some suitable circumstance to present my imitation to a fish. I realize that the terrain here is likely not going to provide me an opportunity to actually catch one of these near mythological creatures, but the excitement of just having seen one is enough to keep me scraping through thorny bushes for hours on end.

My journey to find these fish is analogous in my mind to the long journey that researchers and conservationists have been on for nearly seventy years. When I finally stumble upon a large boulder adjacent to the creek that provides a perfect clearing and

vantage point to stalk a few individual fish, I am overcome with a sense of premature accomplishment. I can't help but think that the recent discovery of this tiny isolated population of Greenbacks invoked a similar sense of relief in the conservation biology community. It isn't long before I have one of these tiny, yet enormously gorgeous fish in my hand. There is a sense of peace and wellbeing that I experience in conjunction with the urgent desire to return the delicate wonder to its home as I hold the fish and scramble to photograph it. There is an intuitive feeling of "it's going to be ok" that the fish seems to convey. Its very existence provides a calming reassurance. What the future holds for these fish (and the rest of the world) is anyone's guess, but it seems as though these extremely fragile and endangered fish aren't too alarmed. "It's going to be ok," they tell us.

Works Cited

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