

Article

Rising from the Ashes: Trout Recovery in Rocky Mountain National Park

[Rocky Mountain National Park](#)

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Trout are tough. They survive freezing mountain winters, outswim voracious predators, and thrive in ice-cold, fast-moving water. But can they survive Colorado's biggest wildfires?

In 2020, the Cameron Peak and East Troublesome Fires scorched about 9% of Rocky Mountain National Park. Anglers and conservationists worried about the effect of these fires on trout populations vital to both recreational fishing and the ecosystem.



Charred trees in the background stand as lasting evidence of the Cameron Peak and East Troublesome Fires, which swept through this landscape and reshaped the ecosystem.

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Tracking Trout After the Fires

To understand potential impacts, the [Inventory and Monitoring Division](#) funded a study of how the fires affected trout, their food sources, and their habitat. Biologists surveyed 19 stream sites in 2021, one year after the fire, and revisited 11 of them in 2022. Some sites had burned while others remained intact, providing a valuable opportunity for comparison. Fortunately, pre-fire conditions had been studied, making it possible to thoroughly assess changes in trout populations and habitat conditions before and after the fire.

Reaching these remote locations was no easy task. Field crews laden with heavy equipment hiked for hours through steep terrain, camping in the backcountry. Often, they spent more time traveling to sites than collecting data, but their efforts were crucial to understanding how fire reshaped the park's streams.

At the survey sites, researchers used electrofishing—a technique that temporarily stuns fish with a mild electric current—to safely catch them. Equipped with a backpack-mounted power source and an electrified rod, they waded through streams, briefly immobilizing fish to identify, measure, weigh, and collect genetic samples before carefully returning them to the water.

They also studied aquatic insects—an essential food source for trout—by sifting through streambed sediment to uncover the tiny creatures, which were then identified in the lab. Additional data on habitat conditions, such as water temperature, pH, dissolved oxygen, and nutrient levels, provided a clearer picture of how fire had altered these mountain streams.



*Left: Researchers collecting data on trout and aquatic insect populations in a high-altitude stream. Right: A brook trout (*Salvelinus fontinalis*), native to the eastern U.S. but not native to Colorado, is measured and documented as part of post-fire monitoring. A clipped lower tail fin indicates it has been sampled for genetic analysis.*

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Findings Show a Dramatic Story of Decline and Recovery

The streams had clearly changed. Ash and sediment from burned hillsides washed into them, degrading water quality and making survival difficult—especially for smaller fish, which are less resistant to fire-associated disturbances and less likely to migrate long distances to find refuge. On average, trout populations dropped to about one-third of pre-fire levels, with young trout experiencing the steepest declines. With fewer juveniles surviving to become breeding adults, population recovery would be slower.

However, some trout sought refuge in cooler, cleaner waters, like streams bordered by wetlands and meadows. By 2022, trout populations showed signs of recovery. Small trout numbers increased, while larger trout counts remained stable, indicating some fish had survived the fires' aftermath and recolonized burned areas. Trout food sources also remained fairly stable, helping trout rebound. While trout and aquatic insect recovery varied between sites, the overall trend was encouraging.

What This Means for the Park

This study helps park managers make informed fish management decisions. A key takeaway is that trout populations in high-elevation streams are resilient. Although the fires caused short-term declines, fish rebounded within two years. This is good news for efforts like the Poudre Headwaters Project, a multi-agency initiative led by the U.S. Forest Service in partnership with the National Park Service, U.S. Fish and Wildlife Service, and Colorado Parks and Wildlife. The project aims to restore nearly 40 miles of connected streams and lakes to provide secure habitat for the federally threatened, native greenback cutthroat trout (*Oncorhynchus virginalis stomias*), Colorado's state fish. The study confirms that burned areas within the park can still be viable restoration sites for the headwaters project.



A native greenback cutthroat trout (Oncorhynchus virginalis stomias).

Colorado Parks and Wildlife/Kevin Rogers

Balancing Recreation and Conservation

Rocky Mountain National Park is a haven for anglers, offering opportunities to catch brown, brook, rainbow, and cutthroat trout. While nonnative species enhance fishing diversity, restoring native trout is essential for ecological integrity—keeping the interdependent elements of stream life alive and well. The park works to ensure that recreation and conservation coexist, with anglers playing a key role in protecting native trout and their habitats by following [regulations](#). Practices like catch-and-release for sensitive species and using barbless hooks help maintain healthy fish populations while preserving the fishing experience.

Trout resilience demonstrates nature's ability to recover, but continued research and conservation efforts help ecosystems remain healthy and adaptable to future challenges.

Want to learn more?

Check out the [final report](#) from this project and learn about other projects through the [Rocky Mountain Inventory & Monitoring Network](#) (U.S. National Park Service).