THE SACRAMENTO BEE

Yellow Creek in Humbug Valley is among the streams in the upper Feather River watershed sampled for trout and invasive species DNA for a Trout Unlimited project to protect and restore fish habitat. ***Bud Turner*** *Feather River Land Trust*

CALIFORNIA FORUM

Climate change is forcing conservationists to pick winners and losers. How to decide?

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For trout in the rivers above Oroville Dam, survival is a slough. They have been navigating around dams in waters sullied by a century of logging, ranching and road building. Now they face streams shared with invasive species hitchhiking around the world at a pace accelerated by climate change.

How's a fish to endure?

To find out, a crew of scientists is collecting water samples across the watershed, from the Middle Fork of the Feather in Sierra Valley to Yellow Creek in Humbug Valley. They are looking for signs of trout – rainbow, brook and brown – as well as threatening intruders – New Zealand mud snails, quagga mussels and the pathogens that cause whirling disease in fish.

Using an innovative technique called eDNA, fish biologists are analyzing the water for genetic material that has been separated from organisms: skin cells shed by fish and tissue from invasive species. eDNA provides a noninvasive DNA sampling that would otherwise be practically impossible in the 2 million-acre watershed, said Ken Roby, an aquatic ecologist coordinating the survey.

Assessing where fish seem to be thriving, and where threats are most prevalent, will allow scientists to prioritize their efforts to protect and restore aquatic habitat in the upper Feather River region. The project is part of Trout Unlimited's mission to sustain California's cold-water fisheries. Instead of the Herculean task of preserving the entire watershed above Oroville Dam, the assessment will allow coordinators to be more strategic with their restoration efforts.

"We don't want to dump a bunch of time and money into a problem we can never fix," said Cindy Noble, chair of Trout Unlimited's Feather River Chapter. "We're not going to do this the stupid way."

Handpicking places for protection is becoming the conservation norm. As mass extinctions and climate flux confront ecosystems with the most unpredictable challenges the natural world has seen in millennia, scientists and land managers are discarding their efforts to resist all change. Even in national parks tasked with preserving native species and the natural landscape, the duress is forcing managers to choose between what to protect and what to let go.

Their choices are aimed at moderating the losses by taking advantage of the opportunities, said Gregor Schuurman, an ecologist with the National Park Service's Climate Change Response Program. "If the place has moved on and will no longer support them, why restore species to that place?"

We should focus instead on the capacity of species to adapt to the changes already reshaping ecosystems around the planet, he told me. Sometimes that requires human intervention. In Glacier National Park, where warm-water species were taking a toll on native bull trout, managers loaded bull trout into water containers and moved them upstream above a waterfall, which served as a natural barrier.

We're not going to reverse the trends but we can manage the changes, Schuurman said.

The Feather River watershed will never return to the free-flowing streams that supported salmon before dam building. It is equally unlikely that water temperatures here will cool while the rest of the world heats up. Tepid streams are a double whammy for fish: They suffer without cold water, while most pathogens thrive. The water samples Roby and his team collected have already documented whirling disease in Yellow Creek and some stretches of Indian Creek.

Rather than trying to remove these pathogens, the Trout Unlimited team will focus on protecting and restoring fish habitat elsewhere. The amount of effort and resources for fish won't change. "The question is where to invest it," said Roby, now retired from the U.S. Forest Service.

Most of us would like to restore all habitats everywhere – for salmon and grizzly bears, for redwoods, willow flycatchers and yellow-legged frogs. The harsh reality is that even the most zealous efforts to bring back some landscapes and species are doomed.

For Roby, the strategy is obvious: “We’re looking for places where fish can maintain populations – for the future, for my grandson,” he said.

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