An adult Cascades frog floats among aquatic vegetation.

REPORTAGE

A frog hops into a park

The last Cascades frog in Lassen Volcanic National Park vanished in 2007. Now, scientists are bringing them back.

STORY AND PHOTOS BY ANTON SOROKIN

THE LAST CASCADES FROG in Lassen Volcanic National Park in Northern California was well known to amphibian survey crews. Year after year, she turned up near Juniper Lake, full of eggs, seeking a mate. But it was a hopeless search; there were no other frogs left. She appeared one last time in 2007. Cascades frogs were once plentiful in the park; now, researchers believed, there were none.

Seeing that final frog inspired ecologist Karen Pope to shift from observational research to studying nature to help restore it. "We've gotten to a place where, if we sit back, we're going to keep watching the last frog," said Pope, who recently retired from the Forest Service.

Now, thanks to a collaboration among timber companies, the National Park Service, the Forest Service, the California Department of Fish and Wildlife and scientists from Washington State University, scientists are reintroducing Cascades frogs to Lassen Volcanic National Park.

The species, which spans much of the Cascade Range, is clinging to survival in California despite mounting threats: drought, habitat degradation, predation by invasive trout, and, perhaps the most serious, chytrid fungus, which has caused amphibian extinctions worldwide. The fungus has nearly eradicated two species of California frogs and compromised at least three others, including the Cascades frog.

Today, Sierra Pacific Industries and Collins Pine timber companies own land outside the national park that hosts the last healthy population of Cascades frogs at the southern extent of their range in the Lassen region. Somewhat mysteriously, frogs fare better against chytrid there than elsewhere. Researchers aren't sure why, but they suspect habitat features, evolved resistance or both.

IN EARLY SEPTEMBER, a procession of rubber-booted biologists, nets in hand, waded into the amphibians' timber company stronghold to collect dozens of young Cascades frogs and tiny froglets just past tadpole stage. Their goal was to reintroduce them to Lassen.

But first, they checked their captives into a weeklong frog spa. Each day, Ryan Wagner, a Ph.D. candidate at Washington State University, who is managing the reintroduction, and several technicians transferred batches of wriggling frogs into plastic tubs of dilute antifungal solution. The amphibians clambered about as Wagner and his team gently sloshed them back and forth to ensure that the mixture coated their entire bodies. Escape attempts were met with a gentle prod nudging the frogs back into their medicinal bath.

The treatment isn't a silver bullet: The chytrid fungus may linger on the frogs' skin, and, once released, they will face it again. But the baths tip the odds, combating infections during the frogs' vulnerable early life, when much of their energy is funneled into growth and their immune systems are weaker.

Next, the researchers introduced the frogs to their new homes. "We were really trying to be selective with the sites," said Wagner. From a bird's-eye view, about a dozen places in the park looked promising, but from a frog's-eye view, most lost their luster. Sites had to be shallow enough for breeding, deep enough to remain partially unfrozen in winter, and rich in insects. "If you don't have all three, you probably aren't going to be able to support Cascades frogs here for very long," Wagner said.

Ultimately, two sites stood out. On Sept. 9, two teams laden with backpacks full of plastic cups, each housing a single frog, marched out to the possible frog havens.

Pope, who'd encountered Lassen's last Cascades frog, was back for their return, along with Nancy Nordensten, the park's chief of resources. Pope, Nordensten and Wagner carefully cracked open the cups. Some frogs sprang out in a blur, splashing into the water and streaking away. Others needed to be gingerly coaxed into the wild. Frogs gathered on stones and logs, basking in the sunlight, some facing outward, others keeping an eye on the action. The human handlers' expressions shifted between beaming excitement and quiet concern as they released frog after frog. Sitting in the shallows, snapping up insects, the frogs looked at home.

Wagner, Pope and a technician lingered for hours, trading observations as they watched the frogs settle in. "Putting the first frogs in the water — it caught me off guard how emotional it was," Pope said later. Miles away, across hills and valleys, the second team

Researchers bathe a batch of Cascades frogs in an anti-fungal solution before reintroducing them to Lassen Volcanic National Park (*below left*).

Nancy Nordensten, the chief of resources for the park, Ryan Wagner, a Ph.D. candidate at Washington State University and Karen Pope, formerly of the U.S. Forest Service, prepare to release the first frogs in September (*below*).

was releasing its frogs.

By the end of the morning, Lassen Volcanic National Park's Cascades frog population had risen from zero to 117. In the months and years ahead, the reintroduced frogs must dodge predators, survive the winter, stay healthy, and, ultimately, breed on their own. The scientists' future, too, is uncertain: If the Trump administration continues to cut funding for the Forest Service and national parks, further reintroduction efforts could be severely constrained.

When it comes to reintroducing Cascades frogs and other amphibians to their former habitats, there's no manual to guide the way, said Roland Knapp, a biologist at the University of California, Santa Barbara unaffiliated with this project. Instead, scientists are writing that manual as they go, said Knapp, who works on reintroducing closely related species across the Sierra Nevada. It's through work like this that amphibian decline in the West can be reversed. "You've done the reintroduction, but now you've got all the learning that comes from that," Knapp added. "You're not done. You've just started."

Anton Sorokin is a California-based biologist, photographer and writer who frequently covers wildlife, particularly overlooked species.