

Recovery plan for endangered butterfly takes wing in San Diego

November 28 2018, by John Wilkens



Quino checkerspot. Credit: US Fish and Wildlife Service

They trudged single file up a dirt trail to a hillside shoulder of open land in Rancho San Diego. It was a clear midweek morning, blue skies, with views to San Miguel Mountain and the Sweetwater Reservoir.

Nobody in the group of about 15 people admired the scenery.

Their heads were down, looking at a patch of parched coastal sage scrub where, if all goes well, 20 years of thinking, hoping and planning will take wing.

Two wings, actually. They're trying to save a tiny butterfly from

extinction.

Paige Howorth arrived carrying a large plastic bin filled with rice-sized Quino checkerspot [caterpillars](#) hatched in a lab at the San Diego Zoo, where she is associate curator of invertebrates.

"Precious cargo," she said.

The caterpillars, tucked inside cones made from blue paper towels, rested in a state called diapause. They'll sleep until the winter rains come and nature takes its course. The rain will prompt a small grass-like herb, California plantain, to sprout, and that's like a loud dinner bell to the insects. They'll wake up to eat, fueling their metamorphosis into butterflies.

That's the idea, anyway.

Howorth and her colleagues—scientists with the U.S. Fish & Wildlife Service, the Conservation Biology Institute, the U.S. Geological Survey, and other agencies—have had some success with this approach on other nearby sites. But there's still much they don't know, and they're constantly tweaking their methods and their equipment.

Howorth pulled the lid off the storage bin and gingerly removed a small plastic cup similar to what you would use for salsa at a take-out Mexican restaurant. Inside were several of the paper-towel cones, each holding a dozen or so caterpillars.

Using a pair of tweezers, she tucked the cones one by one into a softball-sized metal cage, or pod. When it was manufactured, the pod was painted red or green and sold as a seed-feeder for birds. Now it was a makeshift ark, lined with peat moss and painted beige to blend in with the shrubs.

Howorth kept the pod upright so the caterpillars wouldn't spill out of their cones. She put the lid on and wired it shut.

"The first one is ready!" she called out.

Canary In The Coal Mine

Why should we care about a butterfly with a wingspan of less than two inches? What difference does it make if it disappears?

The world would be less beautiful, for one thing. The Quino has dramatic markings, a checkerboard of orange, white and black on its wings that sometimes makes people mistake it for the larger and more famous Monarch butterfly.

And it plays an important role in the wild, pollinating plants and becoming meals for birds and reptiles. Butterflies react quickly to fluctuations in the environment, which is why scientists have long watched them as indicators for the overall health of an ecosystem, even more so now amid ongoing climate change.

"We start losing insects and everything gets out of synch," said Susan Wynn, a Fish & Wildlife biologist. "The Quino checkerspot is a canary in the coal mine."

The effort to save it comes amid what scientists have identified as the sixth wave of mass extinction in the Earth's history and the first since the loss of the dinosaurs. Dozens of species disappear every day. Across the globe, groups are working to buck that trend.

Well into the 1970s, the Quino checkerspot was among the most abundant butterflies in Southern California, with a range that stretched from the coast near Ventura County, east to the Tehachapi Mountains,

and south to northern Baja. Millions of them flitted about every spring.

Construction projects—houses, business parks, shopping malls, freeways—destroyed many of the habitats and fragmented others. Non-native plants choked off the vegetation used by the butterflies for shelter and feeding. Fire and drought worked their own mayhem.

By the late 1990s, about 75 percent of what the butterfly used to call home was gone. It disappeared from Los Angeles, San Bernardino and Orange counties, barely holding on in pockets of southwestern Riverside and southern San Diego counties.

The overall population fell an estimated 95 percent, and in 1997 the Quino was added to the federal endangered species list.

Around the same time, Wynn and other scientists were assessing the environmental impacts of what would become state Route 125, the north-south highway that runs from Otay Mesa to Santee.

Among the species directly affected was the Quino checkerspot. It lived along the freeway route in Otay Mesa, one of just six places in the county where it was then known to exist.

To offset the loss of that site, a mitigation program was adopted that included raising caterpillars in captivity, restoring habitat, and developing a management plan to keep the Quino population from dwindling further.

It took two decades to put everything in place—the funding, the land, the science—but that's what brought the group to the hillside in Rancho San Diego recently.

Sleepy Caterpillars

Wynn walked over to where Howorth was sitting and reached down for the beige pod and its cargo of Quino caterpillars.

She took it to a buckwheat plant several yards away and knelt to get close to the ground. Using strands of wire, she attached the pod to the plant on two sides to keep it from tipping over.

John Martin, another Fish & Wildlife biologist, arrived with a second pod and secured it to another branch of the same plant.

The pods protect the caterpillars from lizards and birds until it's time to emerge, which they do by crawling through small openings in the sides.

The buckwheat where Wynn and Martin had tucked the pods was chosen because of its proximity to patches of plantain, the annual herb that is the meal of choice for the caterpillars.

As the other pods were being put in place—35 of them on this day—Spring Strahm, an ecologist with the Conservation Biology Institute, pulled out handmade laminated signs to be attached to the buckwheat, too.

"Sleepy caterpillars," the signs read. "Please do not disturb."

In the middle of each sign is a drawing of a caterpillar wearing a night cap. It looks like it was done by a child, which is intentional, Strahm said. Experience has shown that signs drawn by children are less likely to be removed by vandals.

Vandals?

They may turn out to be a problem at this release site, one of four in the

12,000-acre San Diego National Wildlife Refuge. It's right next to a trail. There are broken bottles and other human debris nearby.

The Quino team arrived to find that small flags stuck in the ground days earlier to pinpoint where the pods should go had been yanked out of the ground.

Martin suspected the culprit was someone mistakenly believing that the flags belonged to a surveyor marking the boundaries for a new house.

There was no way to know for sure, though, which didn't seem to bother anybody. They're used to uncertainty.

Two years ago, when they released the first group of caterpillars, "we were taking a big leap of faith," Wynn said—faith that was rewarded when a strong rainy season led to hundreds of butterflies flying around.

"We were giddy," Wynn said.

Some of the butterflies were captured and taken to the zoo to deliver more eggs—so many eggs, 4,500, that the team added additional sites for last year's caterpillar release. Everyone was eager for another, even larger bounty.

But the winter was dry, and there were hardly any butterflies this spring.

The [good news](#) is that Quino checkerspots have the ability to remain in diapause for longer than a year if they sense the conditions aren't right to emerge. That, apparently, is what most of them did. They could still take flight.

Fingers Crossed

The scientists were optimistic as they came back down from the hillside last week. A new batch of caterpillars was in place, another step in the process of creating a core population that can survive the boom-and-bust cycles that are a part of nature.

In the coming weeks, the pods will be monitored regularly to make sure no vandalism or other problems have occurred.

Wynn was smiling as she made her way to the cars. In her job as a government biologist, she spends a lot of time in meetings, sitting at tables with developers, lawyers, and city planners. This was not like that.

"We're outdoors, putting a plan into action that we've worked hard on for a long time," she said.

Like the others, she had her fingers crossed, figuratively if not literally.

Fingers crossed for good rainfall, and for plentiful plantain, and for a spring full of winged wonder.

"Now," she said, "we wait."

©2018 The San Diego Union-Tribune
Distributed by Tribune Content Agency, LLC.

Citation: Recovery plan for endangered butterfly takes wing in San Diego (2018, November 28)
retrieved 26 April 2024 from

<https://phys.org/news/2018-11-recovery-endangered-butterfly-wing-san.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--