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Despite rescue efforts, local species dying

NATURAL, HUMAN DAMAGES TO ECOSYSTEM BRINGING LOSS

By Glenda Chui

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Stuart Weiss watched in horror as bulldozers scraped away one of the last remaining homes for the bay checkerspot butterfly.

“It made a real impression,” recalls Weiss, a consulting biologist based in Menlo Park. “It was really painful to watch.”

The 1981 grading of that Woodside field to make way for a housing development was just one step in the long decline of the bay checkerspot, which once fluttered from Mount Diablo and San Francisco south to Hollister.

Today it has all but vanished, despite the protection of the Endangered Species Act, a 443-page recovery plan and 45 years of intense scientific study. The only remaining butterflies are on Coyote Ridge near the Kirby Canyon landfill in South San Jose.

Until a few years ago the checkerspot also lived at Edgewood Park and Natural Preserve in San Mateo County, which was designated by the federal government as a “critical habitat” for the butterfly. But it’s apparently extinct there, with no sightings since 2002.

The story of the bay checkerspot shows how hard it can be to protect the most innocuous of creatures; how acts of nature and human disregard combine to do them in; and how the best of intentions can backfire.

It’s a tale being repeated across the state as once-common butterflies decline and disappear. Of the 18 butterflies listed as threatened or endangered in the United States, 13 are in California.

The loss is more than decorative, researchers say. Butterflies pollinate plants and give birds and other animals something to eat. Like canaries in a coal mine, they signal that an ecosystem is healthy.

Arthur Shapiro, an evolutionary ecologist at the University of California-Davis, has been monitoring more than 135 species of butterflies along a line between Fairfield and Truckee for 34 years. He says he is seeing catastrophic declines in a number of populations, even among common butterflies that happily coexist with humans.

“It’s a little scary,” Shapiro said. “We’re in a good position to say what’s happening. The question is, why? Is it a whole bunch of species declining for individual reasons, or some broader phenomenon affecting them all?”

The bay checkerspot's downfall started more than 200 years ago when Europeans arrived in California. They brought grasses such as rye and wheat, which soon blanketed the landscape and squeezed out native plants that the checkerspots relied on.

There were just a few places the foreign grasses could not penetrate -- patches of a special kind of soil called "serpentine" that lacked nutrients. That's where the wildflowers and the checkerspots made a last stand.

In 1960, a decade before the first Earth Day, Stanford University biologist Paul Ehrlich began tagging and counting bay checkerspots at the university's Jasper Ridge Biological Preserve.

The butterfly became one of the most studied wild animals in the world -- a sort of lab rat for understanding how populations of animals function, flourish and decline.

Over the years, the scientists closed Jasper Ridge to the public and removed grazing cattle. Yet in spite of all their efforts, by 1997 the preserve's butterflies were gone.

It turns out that removing the cattle may have been a mistake. Cows like to eat European grasses, but leave native plants alone, so their grazing actually helped keep the habitat healthy.

In the end, though, researchers think the preserve was just too small and isolated to sustain a healthy population of butterflies through bouts of bad weather.

Researchers also worry about a more subtle killer: fertilizer, in the form of ammonia and other nitrogen compounds that billow from smokestacks and tailpipes and settle onto the ground. Add enough fertilizer to serpentine soil, and it suddenly becomes a good place for European grasses to grow.

At Edgewood Park, emissions from traffic on Interstate 280 have fertilized the soil for 300 yards downwind, allowing Italian rye grass to move in and choke out native wildflowers, Weiss said. Without the flowers, the checkerspot was doomed.

"We basically lost the caterpillar food over a big chunk of the habitat," he said.

Even at Coyote Ridge, far above the traffic on Highway 101, smog is fertilizing thousands of acres of prime butterfly habitat.

On the ridge's top, where a riot of California goldfields, purple owl's clover and other wildflowers blanketed the ground last week, scientists are measuring nitrogen compounds. About 11 pounds of nitrogen per year are falling on every acre here, Weiss said, the equivalent of about five big bags of fertilizer.

So far the Coyote Ridge butterflies are fine; scientists estimate that several hundred thousand emerged there this spring. The preserve is growing as developers buy and

donate land to make up for generating air pollution and destroying other habitats. About 15 percent of the serpentine land on the ridge is now protected, with light grazing to keep the non-native grasses in check.

And Weiss is hoping to bring the checkerspot back to Edgewood Park.

In a week or two, he'll have a contractor mow about 10 acres of European grasses there, mimicking the effect of grazing cattle. That should give the native plants a chance to bounce back. Then he'll try to get permission to move 500 to 1,000 checkerspot caterpillars from Coyote Ridge to Edgewood next winter.

It may be time to rethink the idea that cattle grazing is always a bad thing, Weiss said.

“Even though grazing is unnatural, and can be destructive if poorly done, here we've found a place where it works and is an important conservation tool,” he said.

“We're not talking about protecting museum pieces of nature, but living, dynamic populations. We need to think a little bigger and not be afraid of active management -- of trying things. Doing nothing also has its consequences.”

Contact Glenda Chui at gchui@mercurynews.com or (408) 920-5453.