



Shmuel Thaler/Sentinel

Butterflies sparsely populate this Natural Bridges eucalyptus on Tuesday.

Monarch decline baffles experts

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SANTA CRUZ — A record low number of monarch butterflies at Natural Bridges State Park has highlighted a disturbing trend: California's monarchs are disappearing, and nobody knows why.

Experts say that every year since 1991 fewer and fewer monarchs have migrated to their traditional California wintering sites. Butterfly populations often fluctuate from year to year, but this year's decline is grabbing attention.

"Three years ago when the population fell dramatically, I said it was normal," said Santa Cruz butterfly biologist John Lane. "I now can officially say I am considering beginning to be worried."

Even Santa Cruz's Natural Bridges State Park, a favorite monarch winter resort, has felt the decline. The wintering colony this year is the smallest ever, and park naturalists say that thousands have already been killed by bad weather and hungry birds.

The park is famous for the orange and black swarms that arrive every November. After migrating from as far away as Montana and Canada, the monarchs spend the winter clustered on eucalyptus branches. The branches sag from the weight, and on a warm day the sky is filled with fluttering wings.

There isn't as much fluttering as there used to be, and Beth Bell has carefully recorded the monarchs' decline.

Bell, a graduate student at UC Santa Cruz, has counted monarchs at the park for the last 14 years.

On a mid-November day in 1982, a good year for monarchs, she counted about 200,000. In 1992, there were 15,000, a record low number at the time. This year there are 5,000, a

Monarchs

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new record low and a 97.5% decrease since 1982. If Santa Cruz had suffered a similar decline in its human population over the last 12 years, the entire town could now fit on the bleachers of a high school gymnasium.

"Monarch numbers are low everywhere in the state," Bell said, "so it's not like they just went somewhere else." Bell said that some other traditional monarch winter retreats, such as the Branciforte Site near Santa Cruz, have no monarchs at all.

Lani Forster, an interpretive aide at Natural Bridges State Park, said Pacific Grove also has low numbers of monarchs this year. In a town where children dress up in butterfly costumes for the annual Monarch Parade, there are only one or two clusters that nobody can see, she said.

Answer lies elsewhere

Kingston Leong, a butterfly expert and professor of entomology at California Polytechnic State University, said the answer to the declining population probably lies outside of the state.

The grandparents and great-grandparents of today's Santa Cruz monarchs grew up in places like Montana, Wyoming, Oregon, and British Columbia. If monarch habitat is deteriorating in these places, fewer monarchs will make it to California each winter, Leong said.

Leong suspects that monarchs throughout the West suffer from

a shortage of milkweed, the only plant monarch caterpillars can eat. Leong said that many milkweed plants probably withered in the West's recent hot, dry summers. Forster said milkweed is also vulnerable to development.

"People think of it as a weed," she said. "If you're going to develop property, you don't want milkweed around."

Disease a possibility

Leong said that until somebody surveys milkweed in the monarchs' summer range, nobody will really know if there is a milkweed shortage. Disease could also be a factor in the monarch decline. Leong said many California monarchs are infested with a protozoan parasite. "It could be one of the causes," he said, "but it is not the primary cause." The same parasite is found in populations that winter in Mexico, and those populations are rapidly increasing, he said.

Monarch eggs can be killed by drought and pollution, Bell said. But as for the direct causes of the dramatic decline, "it's really anybody's guess," she said.

One thing is clear: the few monarchs at Natural Bridges are not having a good season. Forster said recent wind and rain knocked butterflies off the trees and onto the ground. She said butterflies can't fly when they're cold and wet, and many fallen monarchs were eaten by ants.

Yet another threat

Phil Simpson, a volunteer who

leads butterfly tours at the park, estimated that 1,000-2,000 monarchs died during mid-November storms, before the butterfly count was taken.

The monarchs face another, unexpected, threat as well. Stellar jays have been "dive bombing" and eating the butterflies, Forster said.

Monarchs are usually poisonous to birds, but according to Leong, some are less poisonous than others. Perhaps the Santa Cruz population is relatively mild, he said.

Bell said bad weather and hungry birds would not normally be a cause for concern. Large colonies can afford to lose a few thousand butterflies.

This year's colony is so small, however, that losses become more significant, she said.

Bell believes that this year's population crash will have lasting consequences. "It could take several years for them to recover," she said.

Big numbers in Northeast

While monarchs are disappearing in the west, populations east of the Rockies are thriving. Professor Chip Taylor of the University of Kansas said that this was a tremendous summer for monarchs in the Northeast. In upstate New York, Massachusetts, Maine, Quebec, and Vermont, monarch caterpillars were just mowing down the milkweed. Those butterflies migrated to wintering sites in Mexico where populations have been growing for several years, he said.