

COLBY SEMPEK

Butterfly, 2008
Archival pigment print, 24 x 16 in



COURTESY: THE ARTIST

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Reversing the Monarch Butterfly Collapse

Roundup Ready
Milkweed

The strange-but-true story of the monarch and its long-distance migration lures and mystifies butterfly aficionados from grammar school children to wizened entomological specialists, myself included. I lived for years in Bodega Bay on the California coast. On the north side of our village, monarchs would cluster over winter in colonies clinging to the Australian eucalyptus and local Monterey cypress in Bodega Dunes park after flying in from points as distant as the Rocky Mountains. They kept me company while I was researching and writing my book *The Dangerous World of Butterflies*.

Other monarchs travel farther south. A couple of hundred miles down the coast from my bayside office, monarchs gather each fall at Natural Bridges State Beach near Santa Cruz, the only state monarch preserve in California. Nearby Pacific Grove, which calls itself Butterfly Town, USA, threatens fines of up to one thousand dollars for “molesting a butterfly in any way.” It’s been a crime since 1939 to harass any of the thousands of monarchs that overwinter in that Monterey Bay city.

Despite such support, in some places the monarchs are struggling. As I investigated the reasons for this, a thought began to take form: Could guerilla botanists take advantage of Monsanto’s best-selling herbicide Roundup to help save the struggling monarch butterfly? Could hackers develop a Roundup-resistant milkweed and preserve the monarch larvae’s sole habitat? Let me explain.

Although North American monarchs west of the Continental Divide are thriving, on the east side of the Rockies populations are suffering catastrophic collapse. Not only do those monarchs magically change from clown-colored caterpillars into majestic butterflies, they defy logic with a multigenerational, ultra-long-distance commute that transits Canada, the United States, and Mexico. The navigational details remain a mystery. No one knows for sure how the butterflies manage a journey from the northeast of North America to the few specific mountaintops in central Mexico where they breed.

Monarchs lay their eggs only on milkweed. The larvae those eggs eventually become feed on milkweed, filling up on a poison in the weed that makes them—once they metamorphose into butterflies—unpalatable for most potential predators. Monarch larvae *only* eat milkweed. No other food source supports the larvae. All indicators