Cal Poly students and faculty are helping to conserve the monarch population in California. Studies since the early 1990s indicate Western U.S. populations of the monarch butterfly are headed for extinction. But occasional spikes that buck the decline leave experts hopeful these seemingly fragile beauties can rebound.

Through a project called Monarch Alert, Cal Poly students and faculty are doing their part to help that hope become reality. In the process, Monarch Alert is giving students a taste of Cal Poly’s Learn by Doing approach.

Launched in 2001 by Professor Emeritus Dennis Frey and now under the direction of biology professor Francis Villalba, Monarch Alert helps generate data needed to determine just how experts can bring about a monarch resurgence.

Preliminary data suggests that the population at monitored sites in Monterey County declined from 35,000 monarchs in 2008-09 to only 5,000 in 2009-10. So monarchs can use all the help they can get from the likes of Villalba and his students.

Villalba (B.S. Biology, 1987) said Monarch Alert’s mission is two-pronged: “I only do projects on which I can involve students and have some impact on the conservation of a threatened or endangered species.”

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The ultimate goal of the program is to help shape conservation management techniques that will stem the population decline or even boost the number of monarchs. Their research is based on the monarchs’ migratory habits. From early March to late October, monarchs are found throughout the U.S. and Canada. As each winter approaches, monarchs migrate to “overwintering” sites as much as 3,000 miles away – Western monarchs to California’s coast and Eastern monarchs to Mexico’s Sierra Madre Mountains.

Monarchs don’t fly at temperatures below 55 degrees Fahrenheit. At night, they hang from trees, nestled in clumps that look more like dried brown leaves than vibrantly colored butterflies. The clumping helps the monarchs conserve energy and heat and helps keep branches from being buffeted by wind.

Led by two graduate students – program coordinator Jessica Griffiths and field coordinator Jaime George – 25 Cal Poly students count monarchs at 17 sites in Monterey and San Luis Obispo counties. They use tagging to determine the number of monarchs in residence this season and, for the first time, to determine movement between overwintering sites.

The consequences could be perilous. “If a grove is diminished or destroyed, it may not be able to make the trip to another grove before nightfall. Arriving at a grove that has been diminished or destroyed may be impossible,” George said.

Students also learn that communication is important to conservation. “People only conserve things they are aware of and care about,” Villablanca said, so students make public presentations and provide information and opportunities for people to be involved.

Monarch Alert has benefited from the involvement of friends such as Helen Johnson, a retired medical technician and citizen scientist who first urged Frey to start the program. Johnson’s financial support has been the sole source of funding for student research over the last decade. The monarchs, she said, give focus to her life in retirement. In turn, she is helping Cal Poly students partake in important research that could positively impact their future academic and professional endeavors.

Student team leaders agree: “I chose Cal Poly because it was important to me to do research that is applied, not just theoretical,” George said. And Griffiths said faculty encourage students to develop their own research projects and build skills outside of the classroom. “It’s amazing for students to be doing this kind of field work as undergrads,” she said. “There is no substitute for that kind of experience.”

You can help with the ongoing conservation efforts. Go to monarchalert.calpoly.edu

The Sublime Art of History

President Obama Appoints Alum Milford Wayne Donaldson to Lead National Preservation Council

When he opened his first office in San Diego in 1978, architect Milford Wayne Donaldson (Bachelor of Architecture, ’85, Engineering, ’87) vowed to retire at 45. He missed that deadline by more than two decades, and at 67, he’s still not ready to quit.

In fact, last May, he received a new, impressive title, when President Barack Obama appointed him chairman of the Advisory Council on Historic Preservation.

Donaldson said he couldn’t turn the offer down, even though the pay is minimal (actually, zero) and the responsibility awesome. “It took my breath away to hear President Obama had appointed me,” he said.

Donaldson is the first architect to serve as chair in the 45-year history of the council, the nation’s lead agency on historic preservation. It is not a full-time position, so he retains his primary interest in old buildings persisted. “Downtown San Diego was a mess,” he said. “After the National Historic Preservation Act of 1966, things started to take off, but San Diego got a late start.”

Fearing demolition and redevelopment, Donaldson and other downtown business owners created the Gaslamp Quarter to preserve San Diego’s most historic buildings. “I opened a one-room office and hired one employee,” Donaldson said. “There were 25 porn shops, three rescue missions, and the businesses had security gates across their entrances. This wasn’t a place I would normally open an architectural office, but it reminded me of older parts of European cities.”

There was more work in the area than he could handle, and none of the contractors he found had good working knowledge of preservation techniques. So Donaldson earned his job as California’s State Historic Preservation Officer, which former Gov. Arnold Schwarzenegger named him in 2004.

Known for his award-winning historic preservation work, Donaldson didn’t start out yearning to renovate old buildings. While an undergraduate at Uppsala University in Sweden, he got into inflatable structures and even lived in an inflatable “biostructure” one summer. Studying for a master’s degree in Scotland, he focused on cutting-edge technology, working with living structures that could move, create food and oxygen, and take care of bio-waste.

But those years in Europe exposed Donaldson to buildings hundreds of years old. “The oldest building at Uppsala University,” Donaldson said, “was built in 1312–40 years after Columbus landed.” Remembering that building’s marble steps, he said, “They had probably been repaired several times – but with the same type of marble. That was my first unconscious awareness moving me toward preservation. It was sublime.”

Donaldson returned to the U.S. in 1972. Six years later, he opened his own business and still practiced with inflatables, contractor’s license and opened sixteen Penny Construction. His reputation and company grew, with jobs ranging from renovating a 1700s adobe structure to mid-century modern, and everything in between.

In his new role with the Advisory Council on Historic Preservation, he has lofty goals. He wants to focus on renewable energy while also protecting the country’s historical resources and cultural landscapes.

He continues to build good working relationships with the American Indians and tribal communities. And he aims to reach out to diverse communities and young Americans to engage the next generation of American preservation.

Donaldson credits Cal Poly with changing the way he thinks about life. “I always wanted to be an architect, mostly because of the buildings I saw,” he said. “Cal Poly gave me a holistic way of thinking.”

A modest man, Donaldson insists he has been blessed. “I was in the right place at the right time.”

And about that retirement? Well, it’ll just have to wait.