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Years of trial and error are about to pay off as scientists prepare to release lab-raised butterflies that may lead to salvation of several native species



Marisol Garcia, an intern at the Peggy Notebaert Nature Museum, transports a regal fritillary butterfly into a cage with others of its rare species. JOSÉ M. OSORIO/TRIBUNE PHOTOS

Preservationists' hearts going aflutter

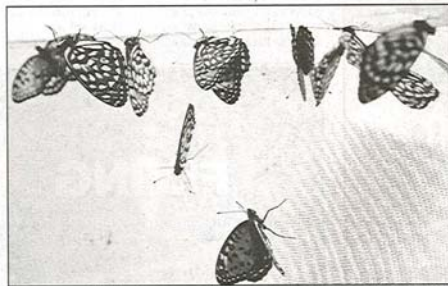
By William Mullen
TRIBUNE REPORTER

Doug Taron and Vincent Olivares are no Dr. Franksteins, but they believe they have gone a long way in solving the mystery of how to get a very rare butterfly species to successfully breed in their laboratory at the Peggy Notebaert Nature Museum.

For the last few weeks, they have had more than 100 adult regal fritillary butterflies emerge from chrysalises in the museum lab. The males came out first, with 30 of them freed to the wilds of Sundrop Prairie, a restored grassland prairie near south suburban Markham where their ancestors once were abundant. On Monday, the rest will be freed there, including the females, which are expected to breed and lay eggs in the wild next fall.

It is work that should get noticed throughout the Great Plains states and the Eastern Seaboard, where regal fritillaries, if they haven't disappeared altogether, are having trouble surviving. It is a rare captive breeding success of the species, achieved after years of experimentation and failure, with not much more than some plastic cups, upended flowerpots and a little intuition.

A large butterfly with black and bright burnt orange wings, the regal fritillary was once common in grasslands from the Atlantic Coast to the Rockies. Because of habitat destruction east of the



After years of trying to raise regal fritillary butterflies to help revive wild populations, museum staffers are planning to release them Monday.

Mississippi River, they are now found only in scattered sites in Illinois and Wisconsin. East of Illinois, they remain in just three isolated sites, one each in Indiana, Maine and Virginia.

"This butterfly has been called the poster child for invertebrate conservation," said Taron, the museum's curator of biology.

"There are a lot of people concerned about habitat restorations for the (regal fritillary), and a lot of people monitor the butterfly where they still survive," Taron said. "We are the only ones that I know of who are doing conservation breeding with it."

For the last decade, Taron and Olivares, the museum's director of arthropod conservation, have

been breeding five rare and endangered Midwest butterfly species, including regal fritillary, silver-bordered fritillary, Gorgone checkerspot, Baltimore checkerspot and swamp metalmark.

All of those species except for the swamp metalmark are dependent on prairie flowers for their survival. In the last 170 years, Illinois has lost all but one-hundredth of 1 percent of the 22 million acres of prairie that once covered the state. Disappearing with them are many native bird, animal, insect and plant species.

The idea is to raise large numbers of the butterflies in the protected confines of the laboratory, then release them to restored

prairie plots where their ancestors were once commonplace. The problem up to this point has been that so little is known about the life cycle of each species, the lab hasn't been able to deliver many butterflies.

To do their work, they get federal permits each year to collect a few females at a time they already are carrying fertilized eggs, bringing them to the museum to lay the eggs.

They have had some success with the silver-bordered fritillary, a species that produces multiple generations every year, Taron said. They have introduced a population that now maintains itself in suburban Gensburg-Markham Prairie.

Until this year's breeding success with the regal fritillary, however, they have had trouble producing any of the other four species, all of which produce only a single generation each year.

Taron and Olivares began working with regal fritillaries in 2006, collecting a few females each September at the Indiana site. By early October the hundreds of eggs each female deposits in the lab hatch as 1-millimeter-long caterpillars. Each one eats its egg shell and then goes into a winter hibernation until April.

Getting the caterpillars to survive the winter months has been the bugaboo. Keeping them in refrigerators to mimic winter cold the caterpillars must survive in nature didn't work, Taron said.

"Most of them died," he said, "and those that survived were so sluggish that when they woke up, they never started eating."

"We decided we needed to try something different, that they needed to face the full force of a Chicago winter outdoors, including some subzero days, like they would in nature."

He and Olivares took the nearly 2,000 caterpillars hatched in the lab last fall and put them in two kinds of "caterpillar cages" — glass canning jars and plastic cups — a dozen or so to a cage, sleeping in folds of crumpled paper towel. They were placed on the museum roof for the winter in covered bins or under large, overturned terra cotta flowerpots. In April they were brought back to the lab and awoke from hibernation.

The final tally should be slightly more than 100 butterflies coming from nearly 2,000 caterpillars, which sounds grim but is probably close to the species' natural survival rates, Taron said.

"This is one of our most substantial successes," he said. "Within the next week or so, we will have put more than 100 adult regal fritillaries in Sundrop Prairie. Every year for the next few years, we should be able to put hundreds more out there to bolster their numbers and broaden their genetic diversity until they won't need our help anymore."

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