



CALIFORNIA'S NEXT REPRESENTATIVE: THE STATE BAT?

California has a state amphibian, a state freshwater fish and a state dinosaur, but one important animal is missing from the lineup — a bat. Thanks to biologist and bat enthusiast Dave Johnston (Biological Sciences, '74), the pallid bat may soon join the *Augustynolophus* as an official representative of the Golden State.

BATS ARE AMAZINGLY BENEFICIAL TO HUMANS. THEY PROVIDE ABOUT \$3.7 BILLION WORTH OF PEST CONTROL MANAGEMENT FOR U.S. AGRICULTURE EVERY YEAR. —DAVE JOHNSTON

Bats — which account for more than a quarter of the world's mammals — don't get a lot of recognition for their contributions to humanity. Without these nocturnal insectivores, pests such as flies, wasps and mosquitoes that contribute to health risks would be far more numerous. Bats that are nursing their young eat between two thirds and all of their weight in insects and arthropods every night.

"Bats are amazingly beneficial to humans," Johnston said. "They provide about \$3.7 billion worth of pest control management for U.S. agriculture every year."

Johnston hopes that designating a state bat will promote greater appreciation of these ecological benefits and improve the conservation of California's bat population.

Johnston first met the pallid bat in the late 1980s while working as the executive director for the Youth Science Institute, a non-profit organization that connects young people in San Jose to science and natural history. A bat was chewing up slugs and dropping the remains on an unhappy San Jose resident's dinner guests as they left the house, and she called Johnston for information.

Intrigued, he checked the literature and found no references to a slug-eating bat. He then wrote an email that would change his life. He asked Brock Fenton, one of the world's top authorities on bats, whether he'd encountered this behavior. Fenton helped Johnston identify the pallid bat, and Johnston ended up earning a doctoral degree in biology with Fenton as his advisor.

"I fell in love with bats," Johnston said. He has been studying them ever since and has become one of the world's leading experts on certain species.

As with so many alumni, the road to Johnston's future career began with one passionate Cal Poly professor. Johnston's inspiration was mammalogy professor

Aaron Roost, who helped the future bat expert develop and give direction to an already active love of nature.

“He opened up a whole new world to me,” Johnston said of Roost. “He provided the structure and discipline that turned natural history into scientific inquiry. He also showed his enthusiasm for the topic even when it was a common observation he’d seen hundreds of times.”

Roost’s enthusiasm rubbed off on Johnston, who decided to pursue mammalogy, a decision that has served him well. “I learned I had fun doing this. I’ve always enjoyed my work,” he said.

Johnston’s other home on campus — or, more often, off campus — was the Outings Committee, now Poly Escapes, which offers students outdoor adventures such as backpacking, camping and rock climbing.

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“Being the chair of Outings helped me develop my leadership skills and gave me confidence in my decision making,” Johnston said. “I also made lifelong friends. We still go backpacking together and get together every New Year’s Eve.”

One of Johnston’s current research interests is the Hawaiian hoary bat, an endangered subspecies that is the only endemic land mammal in Hawaii. As part of a federally approved recovery plan, research is underway to better understand the species so that conservation efforts can be more effective.



That’s where Johnston comes in. By determining the bats’ home range, movements, habitat utilization and diet, he hopes to better understand their ecology so that the local environment can be restored in a way that supports this endangered species.

The pallid bat will have something in common with its tropical cousin if Johnston’s attempt at official recognition is successful — they will both be state representatives, though the Hawaiian species is a state land animal, not a state bat. Johnston chose the pallid bat, whose Pacific population is found almost exclusively in California, because it’s unique in many ways. With its incredibly sensitive hearing, it can detect and capture insects crawling on the ground. It can also glean prey directly off foliage or capture insects while flying, and can eat scorpions and other poisonous arthropods such as centipedes.

Also, according to this bat lover, “It’s attractive and has a golden coat — perfect for the Golden State.”

Johnston has gathered more than 500 signatures in support of a resolution that will be appended to legislation in the California State Senate and, if successful, will make the pallid bat official. The more signatures, the more support the resolution — and the pallid bat — is likely to receive in the Legislature. Anyone interested in learning more about the legislation and the bat can visit:

ipetitions.com/petition/pallid-bat-as-the-california-state-bat

Pictured: (pg.16) Dave Johnston photographs Cuban bats in February 2017 (left). Johnston attaches a radio transmitter to a Mexican fishing bat (right); **Photo credit:** Robyn Mulligan. **Pictured:** (above) The pallid bat **Photo credit:** M. Brock Fenton