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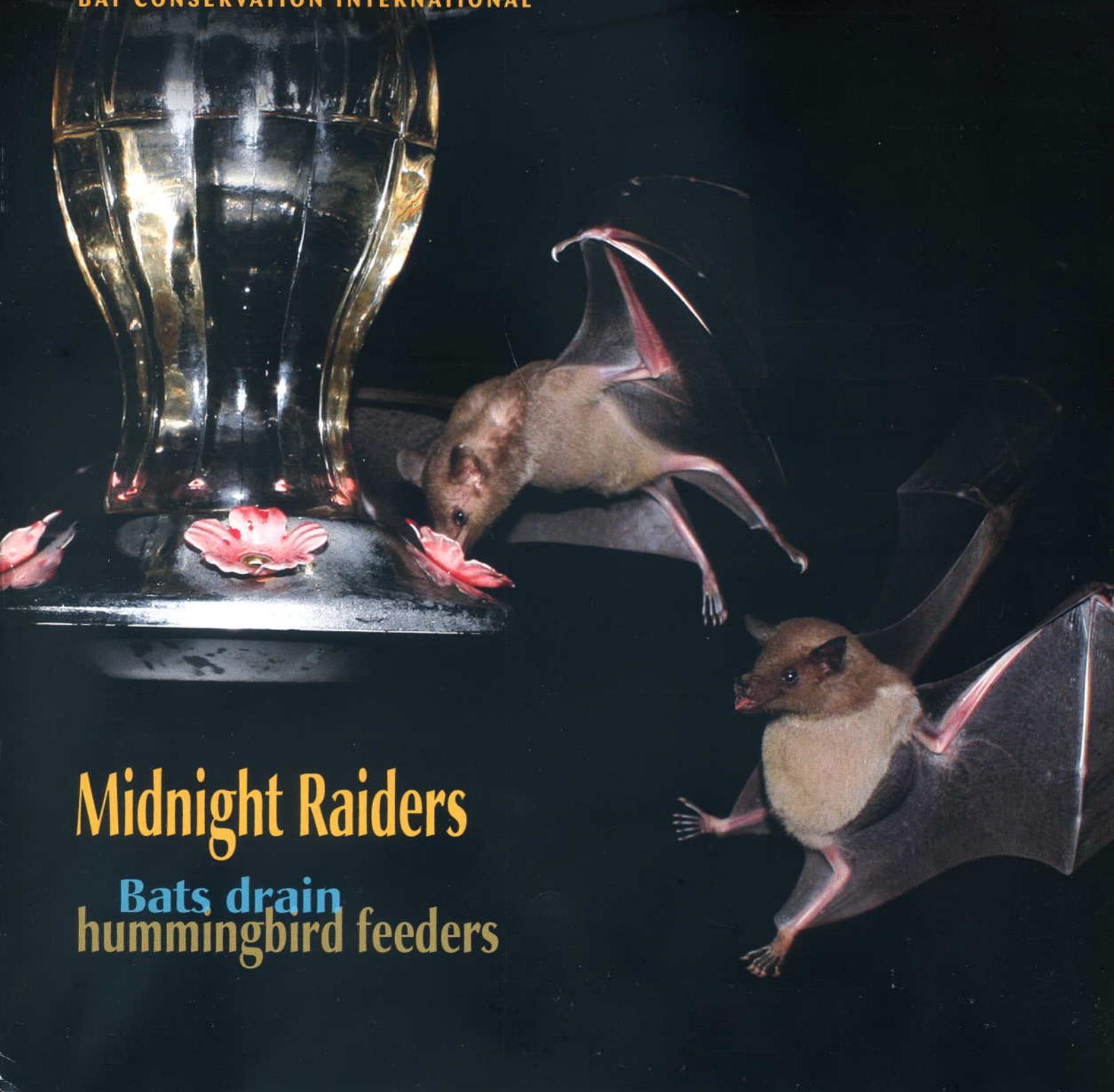
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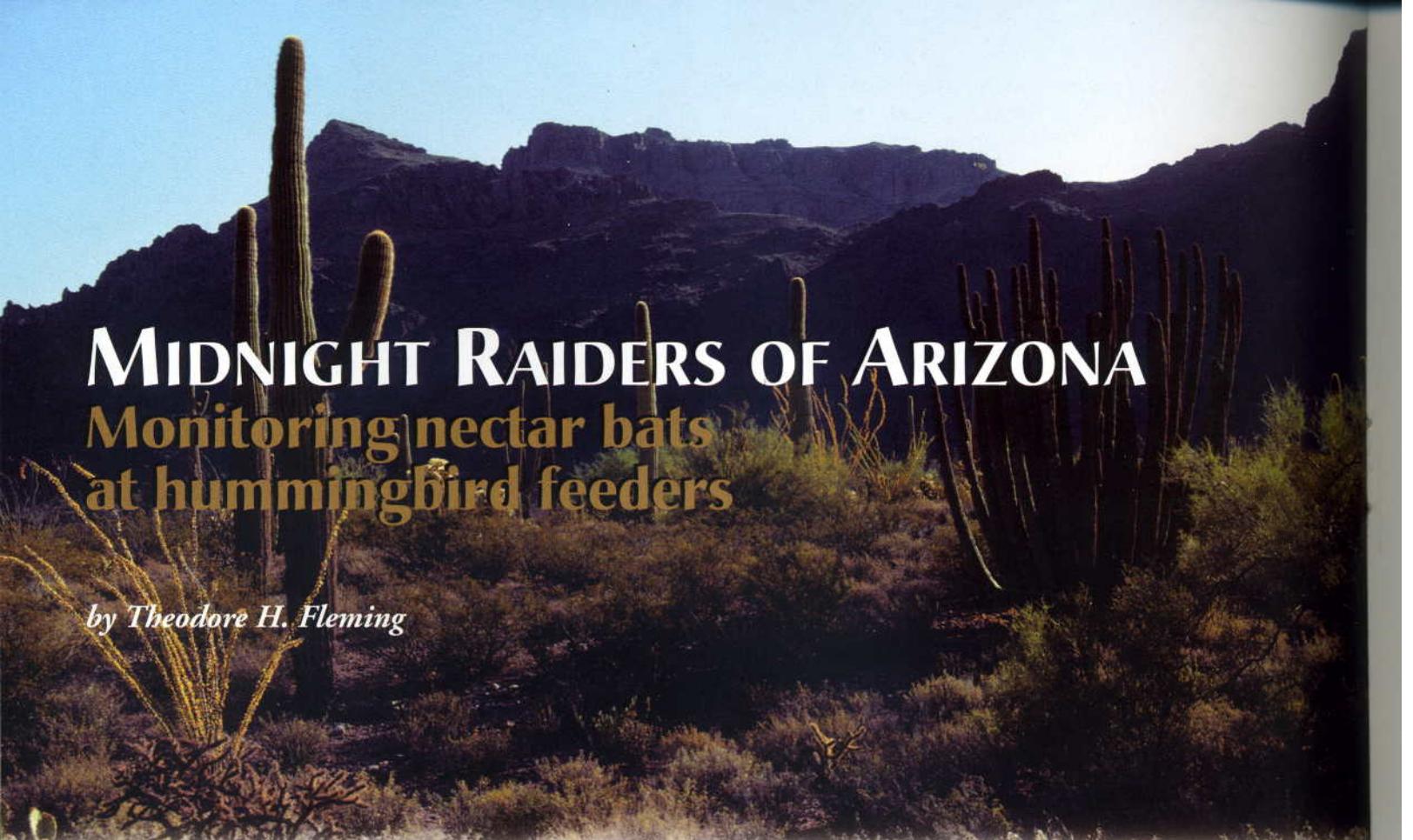
# BATS

BAT CONSERVATION INTERNATIONAL



## Midnight Raiders

**Bats drain**  
hummingbird feeders



# MIDNIGHT RAIDERS OF ARIZONA

## Monitoring nectar bats at hummingbird feeders

by Theodore H. Fleming

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Nectar-eating bats of the American Southwest are critical pollinators of cacti like these in the Sonoran Desert of Arizona.

**B**efore leaving on an out-of-state trip in September 2002, Carole DeAngeli of Tucson, Arizona, filled the hummingbird feeders in her yard. “The next morning,” she recalls, “I was talking to my husband on the phone and he told me that the feeders were empty. ‘Impossible,’ I said.” Hummingbirds, after all, are small and rather dainty eaters. “But he refilled them and discovered they were empty again the next morning. That’s when we realized we had nighttime visitors emptying them.”

The overnight raiders were, of course, bats – and they’ve become increasingly common diners at hummingbird feeders in and around Tucson in recent years. These nectar-feeding bats are not only draining the feeders, they’re also generating a popular and productive citizen-science program and teaching many Arizonans about bats for the first time.

Two of the three U.S. species of nectar-feeding bats – the endangered lesser long-nosed bat (*Leptonycteris yerbabuena*) and the Mexican long-tongued bat (*Choeronycteris mexicana*) – are seasonal residents of southern Arizona. Critical pollinators of columnar cacti and agave, these bats follow a “nectar corridor” of blossoming cacti north from Mexico into Arizona each spring.

These bats have been visiting hummingbird feeders in the Chiricahua Mountains of southeastern Arizona for decades. That’s also the case for the east side of Tucson: both species, which roost in the nearby Rincon Mountains during the day, visit feeders in the late summer and fall before migrating back

to Mexico.

But, as documented by bat researcher Sandy Wolf, the foraging behavior of lesser long-nosed bats (known affectionately as “leptos”) began to change in Tucson around 2006, following an especially poor crop of wild agave flowers. The bats began visiting feeders over a much larger area, moving into central, western and northwestern parts of the city, where people had never encountered empty feeders in the mornings. By 2008 and 2009, leptos were feeding widely throughout the Tucson area, including Oro Valley to the northwest and Green Valley to the south.

In 2007, with range changes taking place and bats showing up in countless backyards, the stage was set for an unusual bat-monitoring program. The Arizona Game and Fish Department and the U.S. Fish and Wildlife Service teamed up with the city of Marana, northwest of Tucson, to recruit “citizen scientists.” Volunteers were asked to monitor their feeders two or three times a week by measuring fluid levels before dark and the following morning.

News of the program spread quickly via news media, flyers and word of mouth, and the network of volunteers has grown to well over 100 people from all over southern Arizona. Volunteers submit weekly reports about nectar-bat activity at their feeders, as well as an end-of-season summary report with the dates of first and last bat visits, dates of peak feeding and estimates of the peak number of bats. They are also asked to submit digital photos so that their visitors can be identified.

In addition, scientists from state and federal agencies, Bat Conservation International and the University of Arizona occasionally visit particularly active sites to capture bats to determine species, sex and age. A few of these bats have been radiotagged to locate their day roosts. This program is providing fascinating insights into the behavior of lesser long-nosed bats and providing important knowledge for their conservation.

We learned, for instance, that in 2007, some of these bats began roosting in a new cave at the western end of the Santa Catalina Mountains – a location that moves them closer to feeders in northwest Tucson.

And we find that bats are quick to locate new feeders. When I moved to northwest Tucson in June 2008, there had never been a hummingbird feeder on my patio, and none of my neighbors were feeding hummingbirds. But by mid-September, a pair of young leptos was visiting my feeder every night. Since then, a dozen or more bats have fed at my two feeders in September and early October each year. The cues these bats use to locate new feeders are still unknown. The bats typically forage in groups, which may aid in the discovery of new feeding sites, and they probably communicate the locations of feeders to their roost mates. It is likely that they return to the same feeders year after year.

We also learned that most of these bats are juvenile males and females, yearling females or adult females. Adult males are

generally uncommon among the “midnight raiders,” since few adult males migrate north from Mexico with pregnant females in the spring.

And many nectar bats, not just a few individuals, have become urban foragers in southern Arizona. Some people have observed and photographed dozens of bats swarming around their feeders. The bats use urban hummingbird feeders in southern Arizona from about mid-August to mid-to-late October. Radiotracking studies find that the leptos use dry riverbeds and other dark areas to commute from their day roosts in the mountains to feeding areas in Tucson. Some of these bats commute as far as 25 miles (40 kilometers) one-way to reach hummingbird feeders.

They use the feeders much as they take sweet nectar from cactus flowers: swirling about the feeder, then periodically sweeping in and almost hovering briefly as they dip their long tongues into the sugar water.

People often ask: “Is feeding at artificial feeders good or bad for nectar bats?” The short answer is: We don’t really know for sure. It could be argued that sugar water from feeders provides an incomplete diet that is rich in energy but low in protein and other nutrients. But many of us have seen bats with their faces covered with pollen (an important source of amino acids) visiting our feeders, so these urban bats probably know where to find natural nutrients, as well.



A Mexican long-tongued bat roosts with a thick layer of agave pollen on its face (left), while this lesser long-nosed bat (right) moves in to pollinate a saguaro cactus. Both species are being spotted at hummingbird feeders in Arizona.



COURTESY OF MEG BENHASE

Two endangered lesser long-nosed bats sip sugar water from a backyard hummingbird feeder in the Tucson, Arizona, area. A growing corps of citizen scientists is monitoring the nectar bats' use of the feeders.

Hummingbirds, the original targets of the feeders, are known to feed regularly on small insects to obtain a balanced diet. So, do artificial feeders harm hummingbirds? Probably not. In fact, a Pacific coastal hummingbird, Anna's hummingbird, has become a common breeding species in Tucson over the past 30 years. New nectar-feeding birds, as well as bats, are taking advantage of this abundant (if artificial) food source in Tucson. My hummingbird feeders now feed an immigrant hummingbird during the day and a migrant nectar bat at night.

Many of our volunteer observers tell us how much they enjoy watching and learning about the "midnight raiders" that visit their feeders. "I have learned that lesser long-nosed bats are extremely graceful in flight, are very fast and have really long

tongues," says Meg Benhase. "They are great fun to photograph and don't seem to mind people or flashes. The more I learn about these bats, the more questions I have and the more I want to learn. Once people get to know these bats, they really love them."

Adds volunteer Patricia Walsh: "It is not without some pride and a little excitement, that I can say one evening in August, 'The bats are back.'"

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