



SPRING 2020

Friends of Ironwood Forest



Summer lightning over IFNM. Photo by Lauren Ashley Trench

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Bats of Ironwood Forest National Monument

By Debbie C. Buecher

Worldwide, bats make up almost 20% of the known mammals, but we still know amazingly little about their unique natural history.

Bats are nocturnal (i.e., active at night) and can rapidly fly long distances over rugged terrain. This trait, combined with their secretive nature, makes studying them very difficult.

Arizona has 28 different bat species with the greatest diversity in the southern half of the state. Twenty-six of our bat species are major predators of nocturnal insects, quietly performing natural insect control each summer evening.

An insectivorous bat will eat well over half of its body weight in insects nightly, many of which are pest insects.

We are also fortunate to have two migratory nectar-feeding bat species, which are important pollinators of columnar cacti and paniculate agaves.

Ironwood Forest National Monument (IFNM) is composed of ~129,000 acres, but its importance to bats is not merely due to the size of protected habitat. The tremendous biogeographic complexity across IFNM is also vital.

A bat study was conducted between December 2001 and May 2003 (Krebbs and Petryszyn 2003), shortly after the area was designated a national monument by President Clinton.

At that time, the focus was on the then endangered lesser long-nosed bat (*Leptonycteris yerbabuenae*). This study focused on nocturnal observations of flowering or fruiting saguaro to record the number of visits by nectar bats.

Some of the monument's mines were visited to look for day-roosting bats, and there was limited mist netting. It was concluded that the presence of *L. yerbabuenae* in IFNM was probably low or incidental.

However, the biotic diversity across the monument offers tremendous foraging and



Mexican long-tongued bat. Photo by Scott Roederer

roosting opportunities for numerous insectivorous bat species.

Some of these bat species are considered sensitive species by federal and state agencies.

We hope to conduct acoustic surveys on the monument to better define bat use but, prior to that, we can predict the bat species that would occur on IFNM by evaluating available habitat.

Table 1 shows the bats that should occur on the monument.

Reference for article and tables: *Bats of the Rocky Mountain West: Natural History, Ecology, and Conservation*, Rick A. Adams, University Press of Colorado, 2003.

(Continued page 3)

Table 1. List of bat species likely to occur in Ironwood Forest National Monument. Includes general roosting associations and whether the species hibernates or migrates from the region during winter (Adams 2003).

			Winter/Summer Habitat		
Scientific Name	Common Name	Hibernates	Caves/ Mines	Trees ¹	Crevices ²
Family Phyllostomidae (leaf-nosed bats)					
<i>Macrotus californicus</i>	California leaf-nosed bat	no	√		
<i>Choeronycteris mexicana</i> *	Mexican long-tongued bat	no	√		√
<i>Leptonycteris yerbabuenae</i> *	Lesser long-nosed bat	no	√		
Family Vespertilionidae (evening bats)					
<i>Antrozous pallidus</i>	Pallid bat	yes	√	√	√
<i>Corynorhinus townsendii</i> *	Townsend's big-eared bat	yes	√	?	
<i>Eptesicus fuscus</i>	Big brown bat	yes	√	√	√
<i>Myotis californicus</i>	California myotis	yes	√	√	√
<i>Myotis ciliolabrum</i> *	Small-footed myotis	yes	√	√	√
<i>Myotis thysanodes</i> *	Fringed myotis	yes	√	?	√
<i>Myotis velifer</i> *	Cave myotis	yes	√		√
<i>Parastrellus hesperus</i>	Western canyon bat	torpor		?	√
Family Molossidae (free-tailed bats)					
<i>Tadarida brasiliensis</i>	Brazilian free-tailed bat	no	√		√

¹ Trees=foliage/cavities/under exfoliating bark; ² Crevices (including bridges), cracks, rock piles
 *Species of Concern (BLM, Forest Service)



California leaf-nosed bat, documented in IFNM.
 Photo by Debbie C. Buecher



Western canyon bat, a common insectivorous bat in IFNM.
 Photo by Debbie C. Buecher

Table 2. General insect prey consumed by bat species likely to occur in Ironwood Forest National Monument (Adams 2003).

Bat Diets	
Scientific Name	General Diet
<i>Antrozous pallidus</i>	beetles, moths, orthopteran, scorpions, centipedes, pollen, cacti fruit – can land on the ground to take prey
<i>Corynorhinus townsendii</i>	highly maneuverable – gleaning small bodied moths & other insects
<i>Eptesicus fuscus</i>	beetles, ants, flies, mosquitos, mayflies, true bugs and other insects
<i>Myotis californicus</i>	small flying insects including flies, moths, beetles
<i>Myotis ciliolabrum</i>	small beetles, moths, lacewings
<i>Myotis thysanodes</i>	moths, beetles, bees, lacewings
<i>Myotis velifer</i>	moths, flying ants, small beetles
<i>Parastrellus hesperus</i>	diversity of small insects
<i>Tadarida brasiliensis</i>	aerial hawking moths and beetles, many are plant pests
<i>Macrotus californicus</i>	Orthopteran, beetles, and moths – will catch prey in flight or forage on the ground for insect prey.
<i>Choeronycteris mexicana</i>	fruits, pollen, nectar, probably some insect prey
<i>Leptonycteris yerbabuenae</i>	fruits, pollen, nectar, probably some insect prey

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Small mouse-eared bat roosting in a cave.
Photo by Debbie C. Buecher



Big brown bat roosting under a bridge.
Photo by Debbie C. Buecher

“Meet the Monument” Set for March 21

The Friends of Ironwood Forest have set Saturday, March 21st for our annual “Meet the Monument” event.

This gathering—free and open to the public—will be held again on the north side of iconic Ragged Top, approximately 20 miles west of Marana.

This year’s event will be a learning experience, featuring informative presentations on saguaros, bats, archeology, and scorpions.

In addition, walkabouts will be hosted by local naturalists who specialize in the various facets of the flora and fauna of the monument. The

event is held in the morning and early afternoon. The walkabouts will be offered at various times during the event.

There will be items for sale, and each person who signs in will be given a ticket for a free raffle.

Other groups who have an interest in the Ironwood will also be present. Food and snacks will be available should you need them, and restrooms will be provided.

For more information, please visit our website: <https://ironwoodforest.org>

Creepy, Crawly Critters of Ironwood Forest NM

By Lawrence L. C. Jones (aka Larry the Lizard Guy), Southwest Zoologists’ League

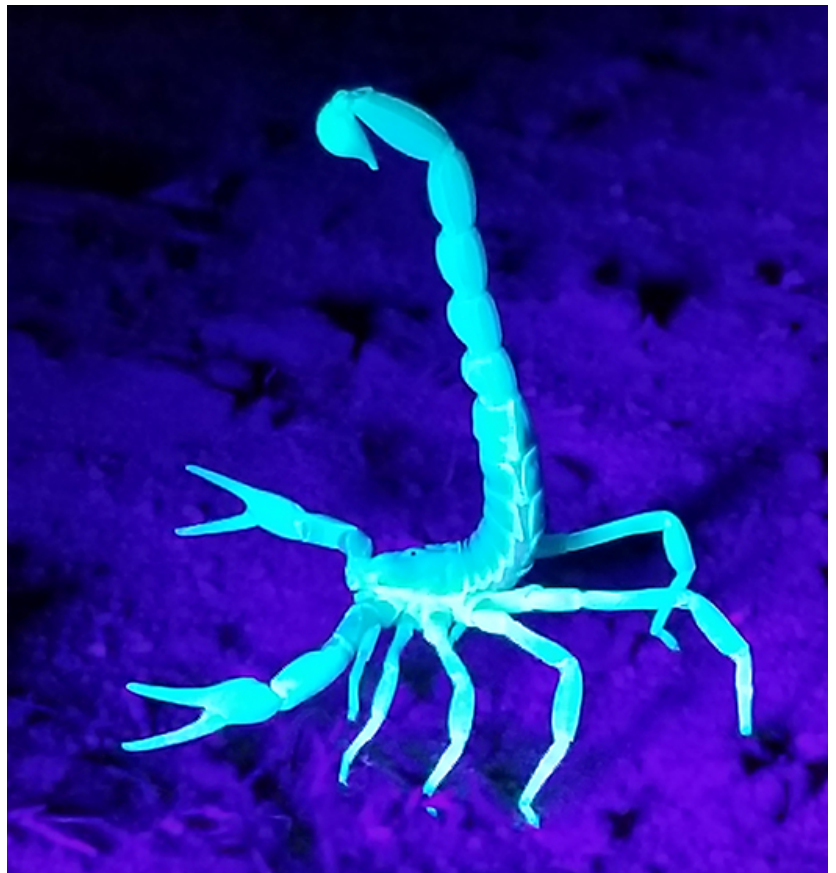
I was pretty excited when the Ironwood Forest and Sonoran Desert national monuments were established at the turn of the millennium, primarily because it meant that large chunks of Sonoran desert habitat would not be engulfed by the rapidly expanding Tucson-Phoenix megalopolis. However, I was a little slow at exploring these natural wonders.

When I retired and started writing a book on venomous animals, I decided to study local creatures that I had been fascinated by since college—scorpions. For study areas I selected some magnificent public lands near Tucson: Saguaro National Park, Tucson Mountain Park, and IFNM.

Oh, yes, there were scorpions there, and lots of them!

Over three years I recorded about 7,500 scorpions in about 45 study sites. Basically, I walked a transect and tallied every scorpion I saw, recording species, habitat, and micro-habitat. I used a black light to illuminate the fluorescent creatures as I walked.

I encountered six species: stripe-tailed scorpion (*Paravaejovis spinigerus*), Arizona bark scorpion (*Centruroides sculpturatus*), Arizona giant hairy scorpion (*Hadrurus arizonensis*), yellow scorpion (*P. confusus*), Avra Valley Dunes



Giant hairy scorpion. Photo by Lawrence L.C. Jones

scorpion (*Paruroctonus stahnkei*), and bajada scorpion (*Kochius colluvius*).

The two most exciting places for me to work were in the deep arroyos of the Tucson Mountains and the stabilized dunes of IFNM. The



*The tiny "Avra Valley Dunes" scorpion.
Photo by Lawrence L.C. Jones*

former was exciting because large numbers of bark scorpions cruised between crevices of the rocky cliff faces, and I occasionally saw the mysterious little bajada scorpion.

The dunes of the IFNM were very cool to survey, as I would see large numbers of the Arizona giant hairy scorpion (the largest scorpion in the U.S.), yellow scorpions, and another mysterious critter, the Avra Valley Dunes scorpion. (Okay, so I made up the name of the latter species, as it has no common name.)

While in IFNM, I often camped in my pop-up trailer, where I enjoyed stargazing, scorpion photography, snake-watching, and solitude.

Scorpions, of course, are not the only living things out there that get this biologist's attention.

The place is well represented by all forms of terrestrial creepy-crawlies.

During and after my scorpion surveys, I espied many other denizens of the desert, some of which are not even found east of the Tucson Mountains.

During the evening, desert millipedes were almost as

common as sand. At times solfugids (aka solpugids, sun spiders, camel spiders) were also incredibly abundant. I saw more thread-snakes there than anywhere else, including one being eaten alive by an Arizona giant hairy scorpion.

Other snakes included Mojave rattle-snakes, sidewinders, and two little rarely seen serpents, the saddled and spotted leaf-nosed snakes. The Avra Valley is one of the few places these two related species co-occur.

After summer rains, a plethora of toads explode in some areas of the valley.

During the day lizards abound. These include desert iguanas, tiger whiptails, and long-nosed leopard lizards.

So next time you are visiting IFNM, remember it is not just a sea of sand and rock islands with a few plants, but also offers a bounty of wildlife that can only thrive in intact desert environs.

And while I've got you on the horn, come to the Meet the Monument event on Saturday, March 21, to hear me speak about these creatures and my scorpion study!

(Note: Larry Jones' book, Lizards of the American Southwest, is available in local bookstores, on Amazon, and at Meet the Monument.)



Giant hairy scorpion dining on live threadsnake. Photo by Lawrence L.C. Jones

Hike the Monument 2019

by Jim Avramis

The Friends of Ironwood Forest had just over 60 hikers come out and enjoy the treasures of the IFNM on Saturday, November 9th. The weather was spectacular, and the three hikes covered many of the special attributes of the monument.

The hike to Cocoraque Butte is always special due to the spiritual and cultural importance of the petroglyphs and other archeological artifacts. The hike was led by doctoral candidate Kirk Astroth. Everyone was thrilled to see the early first-people's habitation.

The hike to the southern face of Waterman Mountain included numerous rare and endangered species, explained by botanist and geologist Bill Peachey. Everyone kept a sharp lookout for the desert bighorn sheep that are native to IFNM and are the last remaining indigenous herd in the Tucson Valley.



Photos by Lauren Trench

The educational nature walk was led by Ries Linley and Bill Thornton. It took place around the major restoration site that is steadily returning a former rock processing area back to natural vegetation. The walk was enjoyed by all who attended.

We appreciate the hikers who venture out each year for the Hike the Monument event. Getting to know the IFNM up close is the best way to encourage its future preservation.

At last report all hikers were accounted for and headed home very satisfied.

Come out next fall to Hike the Monument and enjoy much of what the Ironwood has to offer.



2020 Saguaro Census Underway

by Bill Thornton

On January 4, Friends of Ironwood volunteers helped count and measure saguaros in Saguaro National Park. Starting in 1990, decennial counts have been conducted concurrent with the national census. The 2020 count began in November 2019 and will continue through April of 2020.

Is every saguaro counted? No. Any attempt to do so would be prohibitively costly and take years to complete. Saguaro National Park botanists have identified 45 test plots that provide a representative sample of habitat conditions throughout the park. Our task was to locate, measure, and list each plant in our plot. Flags were placed on or near each plant found to avoid double counting.

When field work is completed, data will be analyzed to produce a reasonably accurate estimate of the total saguaro population in each unit of Saguaro National Park. So how many saguaros are in the park? Numbers increased from an estimated 1,145,784 in 1990 to



Photos by Bill Peachy

1,624,821 in 2000 and 1,896,030 in 2010. That's a substantial increase given the fact that we've been in long-term drought since about 2000. What's happening? How can numbers continue to increase when twenty years have passed since conditions were favorable for establishing new crops of seedlings?

Seedlings shorter than about three inches are easily concealed under nurse plants including mesquite, palo verde, ironwood, creosote bush, and large chollas. It's likely that seedlings missed in 1990 grew big enough to be seen and counted in 2000, and those missed in 2000 were seen and counted in 2010.

The saguaro census offers a great opportunity to participate in hands-on citizen science. To learn more, enter "2020 saguaro census" in your search engine. You can also see results from field surveys completed to date.

The final 2020 count will not be available for several months. We will provide an update in a later edition of the newsletter.

Student Field Trips Build New Generations of Friends of Ironwood Forest

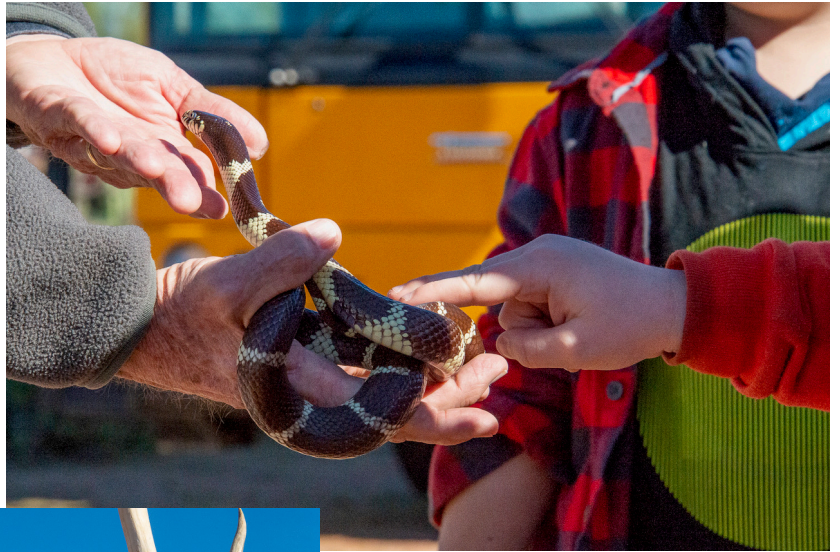
By Tom Hannagan & Gaile James

Donations, from supporters like you, have recently made it possible for the Friends to give grants to eight schools in the Tucson area for field trips to Ironwood Forest National Monument.

This education outreach has allowed over 200 students, plus teachers and parents, to take part in our ongoing effort to make more friends for the beautiful desert treasure in our own backyard – IFNM.

A typical trip begins with students, teachers and parents forming two groups. One group goes on a guided nature walk to learn the role of prominent plants in desert ecology. A brief talk about the geological forces that shaped the monument is included. The children are always delighted to spot a special plant or animal while on their walk and bring it to the attention of the group.

The second group of students split up to attend short table sessions regarding various animal species found in the Sonoran desert. Friends volunteers have one table set up with mammal skulls and a few smaller stuffed skins, all on long-term loan from the University of Arizona. These



identify predators versus prey, based on things like teeth and eye placement.

There is also a discussion table where the students can learn about desert safety. They are taught techniques for staying safe while in the desert and how to interact responsibly with all that is around them. Safety is an important issue for all who want to experience the desert.

Another discussion station, with wildlife biologist Mike Cardwell, rounds out the day with one or two live snakes. One is a Mohave rattlesnake that is safely contained within a clear plastic tube.

Students have the opportunity to touch the tip of the snake's tail, including rattles, and learn about the snake's habitat, anatomy, physiology, diet, and life cycle.

After the nature walk, the two main groups trade places to get the most from their time in nature's classroom. We conclude each outing with the message that IFNM is just one piece of our natural heritage of protected public lands that come with the awesome responsibility for all of us to be good stewards for the future.

Your generous support has made this education outreach possible. It is one the Friends intend to expand and repeat annually.



Photos by Karl Kimek

are teaching specimens, and the students are allowed to handle them as they discuss features of each animal. For instance, they learn to

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Thank you to everyone who has donated to Friends of Ironwood Forest. Your generosity and love of IFNM are doubly appreciated. If your name should have been on this list and isn't, please let us know by email. gaile@ironwoodforest.org

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We care about IFNM. We hope you do, too. We rely on the financial support of folks like you — we call them “Friends” — to help us with our mission of protecting the resources of IFNM, enhancing the visitor experience there, and creating awareness.

Please join FIF today. Become a Friend. We suggest a donation of \$35, but additional contributions help us with our efforts. Contribute online with a credit card or PayPal at:

www.ironwoodforest.org



Our Mission: *Friends of Ironwood Forest is a local non-profit organization that works for the permanent protection of the biological, geological, archaeological, and historical resources and values for which the Ironwood Forest National Monument was established.*

FIF provides critical volunteer labor for projects on the Monument, works with the Bureau of Land Management and many other partners, and strives to increase community awareness through education, public outreach, and advocacy.