



Ash Meadows National Wildlife Refuge

Currents

Summer 2012

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Exploring at Night!

In honor of National Pollinator Week, over 100 people visited Ash Meadows for a nocturnal adventure this June. Everyone enjoyed some “bat fruit salad” while they waited for the event to begin. The salad is made with fruits pollinated and seed dispersed by bats: peaches, mangoes, dates, figs, and cashews.

To start things off, Refuge biologist Cristi Baldino gave a fun and informative presentation on bat basics. Kids learned about what bats are, how they hunt using echolocation, what to do if you encounter a bat – and a myriad of other cool facts about bats! The group then hiked down the boardwalk to search for some bats in the wild!

Participants learned how to use ANABAT detectors to pick up the sounds that bats make. Just like birds, each bat makes a unique “call” that scientists can use to tell them apart. Using a special computer program, GBI Resource Specialist Sam Skalak showed everyone how to analyze the bat sound waves, or sonograms, to determine their species and behavior.

Cristi Baldino and Death Valley N.P. biologist Linda Manning set up a bat mist netting station...

continued on next page



■ Scorpions fluoresce under a blacklight flashlight, making it easier for biologists (and kids!) to find them at night. *Photo by Genevra Adams.*



Upcoming Events:

Art-in-Nature Day!
Sunday, October 14,
10am-3pm

Calling all artists! Join other local artists and display your Ash Meadows inspired artwork. Ash Meadows is lush and green right now - early morning and evening are great times to capture that perfect photo! Multi-Media displays are welcome, including paintings, photography, and sculptures. Reserve a space today- it's free!



Unable to attend the event? No problem! Drop off your items ahead of time and pick them up afterwards! There will be someone in the display tent at all times. Artwork will not be left unattended.

Interested? Call Cyndi Souza at 775-372-5435 or email her at cyndi_souza@fws.gov



...in hopes of catching some live bats. Everybody gathered around and watched expectantly, but the weather did not cooperate. Strong winds blew the net around, making it noticeable to the bats. Dozens of western canyon bats flew around the audience, but none were captured in the net that night. A lesson in the realities of field research!

Once darkness set in, UNLV graduate student Mike Webber led participants on a scorpion hunt. Using blacklight flashlights, everyone searched the ground, the rocks, and plants for the glowing arachnids. Several scorpions were spotted, as well as an unexpected find: a western banded gecko. These secretive, nocturnal geckos live in rocky habitats and are typically difficult to find because of their habit of burrowing underground.

Many thanks to our volunteers and partners who made this event possible: Travis Babbitt, Jessica Babbitt, Ryan Wallen, Mike Webber, Linda Manning, Terry Baldino, Jessica Watkins, and Anica Mercado. ■



■ UNLV graduate student Mike Webber hands a child a western banded gecko. The nocturnal lizard was found along the Point of Rocks boardwalk. Photo by Genevra Adams.



■ The Desert Hairy Scorpion may be the largest scorpion in North America, with some reaching the size of a human hand. It eats smaller scorpions, and occasionally small snakes and lizards. To avoid extreme desert temperatures it digs spiral-shaped burrows up to two meters deep.



■ The Southern Grasshopper Mouse, perches on a rock or mound in sand dunes and sings by night to alert other mice that they are on the hunt. Voracious predators, they eat mainly insects, as well as spiders, scorpions, and lizards.



■ Lesser Nighthawks are *crepuscular* - they hunt at dawn and dusk, catching flying insects in midair. They are commonly seen around the springs at Ash Meadows where insects are plentiful.



■ Weighing the same as a nickel, the Western Canyon Bat is the smallest of the U.S. bats. The greatest numbers are seen in the summer months when the young begin hunting for flying insects to eat.

Nocturnal Predators

What's Wrong with the Toads?

Dramatic declines and extinctions of amphibians have been linked to a fungus called *Batrachochytrium dendrobatidis*, more simply referred to as 'Bd'. This fungus causes the potentially fatal amphibian disease chytridiomycosis, and has emerged as a threat to amphibian species throughout much of the world. In southern Nevada, however, little was known about the occurrence or prevalence of Bd within amphibian populations. As part of a regional effort to better understand this invasive fungus, Research Scientists Jef Jaeger from the University of Nevada Las Vegas, and Matthew Forrest from the Scripps Institution of Oceanography recently teamed up with the Nevada Department of Wildlife to sample amphibians from Ash Meadows for the presence of Bd.

Amphibians living in the desert may seem like an oxymoron, but the springs and wetlands of Ash Meadows serve as habitat for several species of frogs and toads. These include the chorus frog, western toad, and Woodhouse's toad which are native species, and the invasive American bullfrog which was likely introduced to Ash Meadows during more modern times. The scientists were particularly interested in determining the presence of Bd infections in toads, but they also sampled bullfrogs when they encountered them. Sampling for Bd consists of capturing the animals by hand, and then lightly brushing the animal's skin with a cotton swab to collect skin cells. The process only takes a few minutes and the animals are released unharmed. Later, in the laboratory the samples are tested for the presence of DNA from Bd, which would indicate that the animal was infected.

Of the toads sampled 21% tested positive for Bd infections, but none of the bullfrogs were infected. The persistence and growth of Bd, however, is strongly affected by temperature, and the field effort occurred in early April just as daytime temperatures were getting warm. "The bullfrogs were likely basking during the day which allows them to raise their body temperatures and potentially clear Bd infection," said Matthew Forrest. "You do not see adult toads out much during daylight hours when they tend to be underground where the soil is cool and moist." At Ash Meadows, summer temperatures may limit the growth of Bd, but in recent research, Matthew and a colleague have demonstrated that frogs also can clear Bd by soaking in thermal springs with temperatures around 30°C (86°F) – a temperature available year-round in many of the springs at Ash Meadows.



■ A woodhouse toad (left) and western toad (right) from Crystal Spring are tested for the Bd fungus that is affecting amphibian populations around the world. *Photo by Jef Jaeger.*

What impact this infectious fungus has on the amphibian populations at Ash Meadows is not clear. Some species, including chorus frogs and bullfrogs, appear to be chronically infected, but the infections seem to have minimal impact on populations. During the field sampling in Ash Meadows, however, two western toads were observed with physical symptoms of disease. Both of these animals tested positive for Bd and one had a very high level of infection. "My concern is with western toads at Ash Meadows which appear to be an isolated population and potentially unique," said Jef Jaeger. He went on to state, "Clearly, our research just scratches the surface, and from a management perspective there remain many unanswered questions." The thermal springs at Ash Meadows are home to many unique species that have survived dynamic changes to the regional environment, both in the recent and distant past. Perhaps these warm waters will also provide a refuge for the frogs and toads from the invasion of this disease-causing fungus. ■

"My concern is with western toads at Ash Meadows which appear to be an isolated population and potentially unique."

-Jef Jaeger, UNLV Research Scientist



■ Though native to the refuge, northern Baja California chorus frogs weren't tested in this study.

Volunteer Spotlight

Next time you visit Ash Meadows NWR you may see some of our wonderful volunteers. Charlotte and Dan are retired and drive about 1 hour to get to the refuge. Quite the commitment for volunteers and they have been helping us in various capacities for almost 2 years now. They are here several times a month helping maintain the refuge and assisting in the visitor center. You might have seen them at one of our special events too!

Jessica is a local high school student who through volunteering is gaining valuable work related experience. Over the past year she has removed cattails, participated in fish surveys, participated in our seeding program, worked with staff on environmental education programs for hundreds of local grade school children and she currently works in the visitor center. In addition to college classes she is looking into AmeriCorps after high school.

Our volunteers play a very important role in maintaining the refuge and we could not do all of this without them. They are very much appreciated! Next time you're here make sure you say hello!



"Imagine learning something new everyday while doing what you love. That's what I accomplish as a volunteer at Ash Meadows."

-Jessica, student volunteer



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