

Chihuahuan Desert Network Reptile and Amphibian Inventory

Fort Davis National Historic Site

Source: D. Prival and M. Goode, University of Arizona.

PROJECT SUMMARY

Introduction and Background

In 2003 and 2004, the University of Arizona conducted an inventory of reptiles and amphibians (herpetofauna) in six parks of the National Park Service's Chihuahuan Desert Network including Fort Davis National Historic Site (NHS), located in southwestern Texas. Prior to this inventory, little was known about reptiles and amphibians in the network parks, including species of special conservation concern. The primary objectives of this inventory were to document reptile and amphibian species, map the distribution of all species found, and determine a rough relative abundance for each species. The results from this may assist in future monitoring efforts. This summary presents information from the surveys at Fort Davis NHS. Summaries of the surveys conducted at the other Chihuahuan Desert Network parks are available on the Learning Center of the Southwest website, www.southwestlearning.org.

Fort Davis NHS is located in the highly diverse Davis Mountains and is small enough that the researchers and a park partner were able to survey most of the site. The majority of the search was focused on Hospital Canyon, the flats surrounding and north of the fort ruins, and the trail system. In 2003, sur-



DAVE PRIVAL

Big Bend tree lizard (*Urosaurus ornatus schmidtii*) in Fort Davis National Historic Site.

veys were conducted from May to August. In 2004, surveys were conducted from June to September.

Methods

Several searching approaches were used to find reptiles and amphibians: foot surveys, incidental observations, and pitfall traps. In 2004, the researchers used different approaches than in 2003 to maximize the likelihood of finding different species. For each reptile or amphibian observed, the researchers recorded data such as location, time, weather, and species.

The majority of observations were recorded during *foot surveys*: 882 animals in 25 species. The searches were conducted at times when reptiles and amphibians were most likely to be active (morning around sunrise and evening around sunset). Most of the foot surveys were conducted off-trail. While on foot, the researchers looked under rocks and logs, and used mirrors and flashlights to illuminate crevices.

Incidental observations were recorded while the researchers were not conducting formalized searches (e.g., on days off or while driving to a search area). Incidental observations accounted for 318 animals in 23 reptiles and amphibian species.

Pitfall traps were used to capture small reptiles and amphibians running or crawling across the ground. In 2003, two sets of pitfall traps were checked by Fort Davis NHS staff and volunteers daily. 21 reptiles and amphibians of 9 species were



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Juvenile Great Plains skink (*Eumeces obsoletus*) in Fort Davis National Historic Site.

caught in pitfall traps. The pitfall traps were dismantled after the inventory.

Voucher specimens were collected for nearly each species found in Fort Davis NHS. Voucher specimens provide proof that the species actually occurred in Fort Davis NHS during the inventory and help to confirm it was correctly identified in the field. A total of 29 voucher specimens representing 27 species were collected in Fort Davis NHS. Voucher specimens provide important data about reproduction, diet, health, and morphology. DNA collected from voucher specimens can be used to examine population questions, and genetic relationships within and between species. Voucher specimens previously collected in the parks are spread among many institutions. For this inventory, the voucher specimens from Fort Davis NHS are on permanent loan to and stored at Museum of Southwestern Biology, University of New Mexico, Albuquerque, and are freely available to researchers and managers.

Results

In total, 1,161 reptiles and amphibians were found at Fort Davis NHS by researchers and Fort Davis NHS partners during this inventory, representing 29 species: five frogs and toads, 12 lizards, 11 snakes, and one turtle.

One species found in Fort Davis NHS was listed as state threatened, the Texas horned lizard (*Phrynosoma cornutum*). No nonnative reptile or amphibian species were found during this inventory.

Discussion

Fort Davis NHS is a small site located in the highly diverse Davis Mountains. Consequently, it is likely that many species occur occasionally at the site that were not documented in the survey. The researchers attempted to document as many species as they could. In order to determine what percentage of the total herpetofauna community known to occur within Fort Davis NHS that was documented in this inventory, the results were compared to lists of species likely to occur in Fort Davis NHS based on range maps and available habitat. It is estimated that there were probably 22 species that are likely to occur in Fort Davis NHS at least occasionally, that were not observed during the inventory (four frogs and toads, one salamander, five lizards, 11 snakes, and one turtle), meaning this inventory may have documented 57% of the reptile and amphibian species in Fort Davis NHS. However, the lack of previous intensive surveys in Fort Davis NHS gives little confidence in the total estimate of species that occur in Fort Davis NHS. Given the low percentage of documentation of species likely to occur in Fort Davis NHS, a repeat of this inventory may be warranted.



IAN MURRAY

Juvenile short-lined skink (*Eumeces tetragrammus brevilineatus*) in Fort Davis National Historic Site.

The data from this inventory can be used as baseline data that may be useful to a monitoring program. Long-term monitoring and/or repeated inventories may help detect changes within reptile and amphibian communities caused by climate change, drought, invasion by nonnative species, wildland fire, or other factors. Reptile and amphibian populations can change dramatically between surveys in a given year due to the timing and amounts of precipitation. The researchers provided suggestions and evaluations of potential monitoring strategies such as monitoring species composition, monitoring species richness, monitoring species distribution, and monitoring relative abundance. Based on this study, the researchers concluded that weather has an important effect on the success of a given survey and it is important to survey each area multiple times within a season.

Literature Cited

Prival, D., and M. Goode. 2005. Chihuahuan Desert national parks reptile and amphibian inventory. Final report. University of Arizona.

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