



MOJAVE NETWORK

Inventory Summary Report

INVENTORY OF AMPHIBIANS AND REPTILES AT MOJAVE NATIONAL PRESERVE

INTRODUCTION AND OBJECTIVES

The USGS Colorado Plateau Research Station at Northern Arizona University, in cooperation with the Mojave Network (MOJA), conducted an inventory of amphibians and reptiles at Mojave National Preserve in 2004 and 2005. This inventory, identified as a high priority for the park, used fieldwork, museum collections, and literature review to document species occurrence in the Preserve. Project objectives were to document at least 90% of the species present, provide one voucher specimen for each species identified, and provide GIS-referenced distribution information for sensitive species.

METHODS

This inventory used non-random, targeted sampling methods. Surveys were focused in areas which park managers identified as lacking adequate baseline information on species occurrence, having a high potential for increasing the park species list, or being of special management concern. These areas included the Clark Mountain Range, the Piute Range, and two perennial streams.

General surveys – During visual encounter surveys the area searched, start and stop times, weather conditions, and observations of all amphibians or reptiles encountered were recorded. Surveys varied from short duration searches of specific habitats to all-day hikes over extensive areas. Nocturnal general surveys included listening at potential breeding locations for calling amphibians, as well as visual searches of pools and streams for tadpoles and egg masses.

Nighttime road driving – Road surveys were done at speeds of 20-30 km per hour on paved and good dirt roads. The road in the headlights of the vehicle was scanned and the species, location, sex and age of all amphibians and reptiles encountered were recorded.

Random encounters – Amphibians and reptiles seen at times other than during formal surveys were referred to as random encounters and standard data was collected.

Voucher specimens – Several road-killed animals found in good condition were salvaged and deposited at the Natural History Museum of Los Angeles County. Specimens are tagged with species, collector, date, and collection site.

Literature and museum specimen review – Species-specific distribution literature, theses and unpublished reports relating to amphibians and reptiles within or near MOJA were reviewed. Experts familiar with aspects of the MOJA herpetofauna were also consulted. Kent Beaman, from the Los Angeles County Natural History Museum, gave access to his database of museum specimen records from 21 institutional collections in Riverside and San Bernardino counties. In addition, the collections of the Yale Peabody Museum and the University of California's Sweeney Granite Mountains Desert Research Center were searched.



Long-nosed leopard lizard - Photo courtesy Erika Nowak

RESULTS AND DISCUSSION

Overall inventory completeness is estimated at 95%. Only the California Treefrog and the Western Rattlesnake are thought to remain undocumented, resulting in an inventory completeness of 67% for amphibians and 97% for reptiles. 31 species were recorded during fieldwork and 7 additional species were documented through the literature and

Project Synopsis

Partner: USGS Colorado Plateau Research Station
at Northern Arizona University

Principal Investigators: Trevor Persons, Erika Nowak

Documented: 31 Amphibian and Reptile Species

Project Duration: 2004 - 2007

Cost: \$36,000

museum review. Of the 1,913 individuals recorded, 73% were lizards, 16% were amphibians (all Red-spotted Toads) and 10% were snakes. The most commonly observed species was the Side-blotched Lizard. Nine reptile specimens were collected. Most were found dead: only one live animal, a Long-tailed Brush Lizard found at Piute Creek, was collected.

Literature and museum specimen review – The

most comprehensive account of MOJA herpetofauna is a 1948 report that recorded 29 species from the "Providence Mountains Area." 1,723 museum specimen records were collected. Almost all potentially occurring species are known to be documented with museum specimens.

Road mortality of snakes - The percent of snakes found dead on road (DOR) was very high on the extensive high-speed roads in MOJA. For example, percent DOR on Morningstar Mine Road, Kelso-Cima Road, and the portion of Kelbaker Road south of Kelso, a route commonly used as a cutover between I-15 and points south of I-40, is a combined 66%. In contrast, the long section of Kelbaker Road between Baker and Kelso had a percent DOR of only 17%. Snakes such as the Rosy Boa, a slow-moving species, could be impacted by this high rate of road mortality. Two Rosy Boa habitats meet in the Granite Pass area, along the busy southern section of Kelbaker Road. If populations near Kelbaker Road were severely reduced or eliminated, gene flow between the populations in the Granite and Providence Mountains might be cut off.

Rare, exotic, or sensitive species – The 15 Desert Tortoises found were the only species recorded at MOJA listed as Threatened under the federal Endangered Species Act. Mojave Fringe-toed Lizard and Gila Monster, both documented from MOJA, are listed as Species of Special Concern by the state of California. Mojave Fringe-toed Lizards were found commonly at Kelso Dunes, but no Gila Monsters were found. The Pacific Treefrog, which is native in the Mojave River system, only occurs at MOJA in and around the pond at Zzyzx, and was probably introduced after the pond was constructed. Bullfrogs formerly occurred in this pond, but are no longer found. In 1992, BLM personnel relocated a few Western Pond Turtles from Camp Cady west of MOJA to the pond, but the lack of recent sightings suggests they did not survive.

RECOMMENDATIONS AND FUTURE WORK

Inventory work should be directed towards determining the status of California Treefrog, through intensive surveys in the Cove Spring area of the Granite Mountains, and the Western Rattlesnake, most likely to occur in the upper elevation woodlands of the higher mountains. Although most potentially occurring species of amphibians and reptiles have been documented from MOJA, many species are known from only a handful of observations and much more field effort is needed to determine their status or distribution within the Preserve. For example Gila Monsters haven't been positively recorded since 1982.

Although only one native amphibian, the Red-spotted Toad, was documented, monitoring of amphibians may provide valuable information. Long-term studies are often necessary to estimate population status and to separate natural fluctuations in amphibian populations from human-caused impacts. Malformed Red-spotted Toads were found at Piute Creek and monitoring of these toads should be made a priority. The malformations could have been caused by changes in water temperature or chemistry following the fire along Piute Creek in 2004, residual contaminants from old mining operations, herbicides used in tamarisk removal, or other factors. The Piute Creek area should also be of concern for multi-taxa long-term monitoring due to the drastic changes in habitat composition and structure caused by the fire. It will be important to monitor this area and compare species recovery to baseline information from before the fire.



Desert night lizard - Photo courtesy Erika Nowak