

Vertebrate Species in Utah Northern Colorado Plateau Network Parks

NPS Cooperative Agreement No. H1341040002

Annual Report

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Crotalus viridis viridis X *Crotalus oreganus lutosus*, Golden Spike N. H. S., 23 August 2005

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Goals

The Utah Division of Wildlife Resources (UDWR) and the National Park Service (NPS) have entered into a cooperative agreement to verify occurrences of certain vertebrate species within the park units of the Northern Colorado Plateau Network (NCPN). Prioritization of this work is based on the species verification process used by NPS' Inventory and Monitoring. It has been mutually agreed that work will target vertebrate species considered to be "present in park" (i.e., a given park unit) but lacking voucher evidence (preserved specimen or photograph) and those "probably present". Other species, such as those "unconfirmed", will not be overlooked but will not be considered primary target species. It has also been mutually agreed that the lethal taking of animals for vouchers will be avoided unless there are strong scientific reasons for such collecting (e.g., to confirm identification) and that photographs and salvaged (already dead) specimen material will serve as vouchers to the extent possible.

Methods

Field work to be accomplished under the cooperative agreement was initiated in 2005. This initial work has focused on amphibians and reptiles but also included mammals and birds as opportunity allowed.

A variety of techniques were employed in the herpetological field investigations. These included visual encounters while hiking during the day and visual encounters while driving roads, both during the day and at night. Daytime searches included not only visual detection of active or basking reptiles and amphibians (and other vertebrates) but also turning of surface objects such as rocks, logs, and trash (boards and other debris) in search of inactive animals hiding beneath such objects.

The availability of a volunteer, Dr. Rebecca Ditgen, a mammalogist affiliated with Mercer University, Macon, Georgia, in the fall of 2005 allowed pit-fall traps to be used and checked at frequent intervals (twice daily) in Natural Bridges National Monument. Traps were constructed using soda pop containers (aluminum cans and plastic bottles) with the tops removed. These were then buried in the ground with the tops level with the ground surface, in most cases under shrubs or trees and often along the edges of logs, exposed roots, or rocks. Forty-four such traps were installed. Pit-fall traps are the best method for the capture of shrews and can be effective for capture of other small terrestrial vertebrates as well, including other small mammals (i.e., small rodents), amphibians, and small reptiles (lizards and small snakes).

Work Accomplished

The Northern Colorado Plateau Network Utah park units that were investigated during 2005 were Hovenweep National Monument (HOVE), Natural Bridges National Monument (NABR), Capitol Reef National Park (CARE), and Golden Spike National Historic Site (GOSP). The table presents data for amphibian and reptiles documented in these park units during 2005. Accompanying this progress report are digital images referenced in the table.

Summary of Findings

Data records for amphibian and reptile species detected in Utah park units are presented in the table. The 80 records in the table represent ~92–94 individual amphibians and reptiles of at least 15 species found alive or dead (or in some cases evidence in the form of shed skins of snakes) within the four park units (HOVE, NABR, CARE, and GOSP). Uncertainty in the total count of individuals derives from one instance in which there was the possibility that the same individual or individuals may have been detected and counted more than once and from the discovery of multiple shed skins of two species of snakes at one site, which may or may not have represented a multiple individuals of the two species. Two or three of the collected (i.e., salvaged) specimens will require more study to resolve (if possible) specific or subspecific identity with certainty.

One of the most interesting discoveries was that of a rattlesnake in GOSP that is morphologically intermediate between *Crotalus oreganus lutosus* (the Great Basin race of the western rattlesnake) and *Crotalus viridis viridis* (the prairie [or type] race of the prairie rattlesnake). Photographs of rattlesnakes from earlier NPS work in GOSP (before recent split of *Crotalus viridis* [*sensu lato*] into two species, *Crotalus viridis* [*sensu stricto*] and *Crotalus oreganus*) show more than one typical *Crotalus oreganus lutosus* and what appears to be a typical *Crotalus viridis viridis*, demonstrating that both species occur in GOSP. The author has been carefully examining rattlesnakes from various parts of Utah for the last 7 years; among the many Utah rattlesnakes examined, the rattlesnake captured in 2005 in GOSP is the only individual that is considered to represent a hybrid. It is well known that in captivity almost all species of rattlesnakes are capable of producing hybrid offspring, but hybridization in rattlesnakes in nature seldom occurs.

Although pit-fall trapping in NABR was carried out for 784 trap days and nights, no shrews or other mammals were captured. The only vertebrates captured were tiny lizards, presumably a common species verified by other means in this park unit. (Hatchling sagebrush lizards, *Sceloporus graciosus*, were observed by the author in the vicinity of the traps and may have been the species captured and released by the volunteer.) While the failure to capture shrews was

disappointing, it was not surprising. Shrews obtained in long-term pit-fall trapping studies in interior western North America using very large numbers of pit-fall traps often represent mere fractions of 1% trap success.

Recommendations

The work accomplished thus far under the cooperative agreement is preliminary. This work will continue in 2006, expanding to include work in other park units of the NCPN and building on the experience gained in 2005.