Biological Inventory for New Mexico Parks

Capulin Volcano National Monument: Plants, Herpetofauna, Birds, & Mammals

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Introduction

Capulin Volcano National Monument (CAVO) contains 793 acres of land, including the cinder cone, covered primarily with pinyon-juniper woodland; scrub oak and other shrubs; remnants of a ponderosa pine forest; and over 200 acres of high plains short-grass prairie. Checklists had been available for the park's plants, herpetofauna, birds, and mammals, but complete inventories had not been conducted prior to 2002. In collaboration with the National Park Service, the New Mexico Natural Heritage Program (NMNHP) conducted inventories of vertebrate animals and vascular plants for three parks in New Mexico, including CAVO. In each park, inventories were performed for taxa that had not previously been thoroughly surveyed. The intent of the work was to locate and identify as many species as possible in each park. The inventory results provide baseline information for future inventory and monitoring.

Methods

Target species lists were created for each taxon based on park checklists, field guides, other published literature, and expert opinion. Once park habitats were visited (prior to actual inventories), the lists were revised based on habitats present/not present. Observations and trap locations were recorded using a handheld GPS unit. Details on inventory methods and species list revisions are available in the full project report.

PHOTO: JOHNSON ET AL. 2003

Figure 1. Drift fence and pitfall trap array at CAVO.

PROJECT SUMMARY

PHOTO: BRYAN HARRY

Badger

Vascular Plants

Vegetation sampling was conducted August 28-30, 2002. Nine 400m^2 plots were established in the park to include each of the major community types in six major habitats. Plant species cover was estimated in each plot, physical characteristics were described, and photographs taken. From each plot, we also searched the surrounding landscape within the vegetation type for additional species. Additional areas outside of plots were examined to ensure that all vegetative communities were evaluated.

Reptiles and Amphibians

Pitfall trap arrays (Figure 1) were used on May 11-12, July 2-5, and July 29-August 1, 2002. Also, cover boards were set out from May 11 to August 1, 2002 and checked daily during the trapping periods. Walking surveys in all habitat types were also conducted during the first two visits.

Birds

Breeding birds were surveyed using linear point counts with distance sampling. Linear transects consisted of 4-8 points at least 250 meters apart (to minimize counting individuals >once). Two transects in two habitats (grassland and pinyon-juniper) were surveyed between May 28-29 and June 11-12, 2002. Habitats targeted for survey at CAVO outside of point counts included the residential area, visitor center, crater rim,

and within the crater.

Mammals

Pitfall and Sherman traps were set on three nights on each of three visits: May 10-13, June 3-6, and July 29-August 1, 2002. Two tracking stations were placed in open grassland east of the visitor center and used during two survey periods.

Results

Plants

The field survey identified 146 plant species, subspecies, or varieties (representing 43 families, 115 genera, and 146 species). The surveys documented 4 trees, 17 shrubs, 7 sub-shrubs, 32 grasses, and 86 forbs on the park. Ten of these species were introduced species. Some species observed were not on the target list, and other species known to occur at CAVO were not found during the inventories. In summary, 189 of 208 (91%) target species were accounted for.

Herps

The revised pre-inventory list for herps contained 34 species. Eight species were documented by NMNHP during the inventory and two species were seen by park staff, for a total of 10 species or 29% of those on the target list. These include the New Mexico spadefoot toad (*Spea multiplicatus*) and the bullsnake (*Pituophis catenifer*).

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Bullsnake (or gohper snake)

Birds

Fifty-six bird species (or 88.9% of the revised target list) were documented by NMNHP or park staff during the inventory. Three of these species, however, were migrants and therefore not added to the final bird list. The most frequently detected bird on point counts was the spotted towhee (*Pipilo maculatus*), with 25.8% of all detections, followed by the green-tailed towhee (*Pipilo chlorurus*) (11.7% of detections), and the chipping sparrow (*Spizella passerina*) (6.3%).

Mammals

Of the 46 mammals on the revised target list, 18 were recorded during the survey and 11 had been recorded by park staff or past researchers. Therefore, 29 mammal species, or 63% of those on the target list, have been observed at CAVO. Townsend's big-eared bat (*Corynorhinus townsendii*), observed during the survey, is a species of concern according to the U.S. Fish & Wildlife Service. Medium to large-sized mammals recorded include the badger (*Taxidea taxus*), black bear (*Ursus americanus*), and porcupine (*Erethizon dorsatum*). The Muridae family of small mammals (including the deer mouse, *Peromyscus* spp.) was the most diverse taxonomic group detected at the park.

Discussion

Only a fall survey was conducted for plants due to low spring and summer rainfall. These conditions may explain why many targeted plant and herpetofauna species were not found in 2002. Long-term programs to manage and suppress introduced plant species are encouraged. The absence of livestock grazing at CAVO has facilitated increased diversity of grassland birds, but grassland encroachment by conifers may decrease the area available to grassland species. The inventory provides a snapshot of the mammalian diversity at CAVO, and additional sampling with baited camera stations and Tomahawk traps would probably increase medium-sized mammal detections.

Contacts

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