

SURVEY OF VERTEBRATES  
ON THE BIG HOLE NATIONAL BATTLEFIELD

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Objectives

The primary objective of the survey was to determine species composition, relative abundance, and distribution of vertebrates on the Big Hole National Battlefield. Secondary objectives included: 1) identification of unique species such as those listed as threatened or endangered by the United States Fish and Wildlife Service and estimation of their population size; b) identification of species not endemic to the area and estimation of their population size; and c) make recommendations with regard to controlled burns. Information gained from the survey will enable National Park Service managers to assess future environmental impacts and develop reliable management plans.

Methods

Birds were surveyed using both walking transects (Anderson 1970, Mosconi and Hutto 1982) and mist nets. Two transects were established in mid-May 1987 and walked once a week through mid-August. Transects bisected all major vegetation types. Mist nets were set in areas where visibility was limited. Mammals were identified by direct observations while walking transects, spotlighting, trapping, and from tracks left at scent stations (Linhart and Knowlton 1975). Transects walked were those established to identify birds. Trapping efforts included the use of Tomahawk live traps, Sherman live traps, and pit fall traps. Traps and scent stations were located in all major vegetation types. Fish were surveyed using seines, electrofishing equipment, and minnow traps. Reptiles and amphibians were located in conjunction with other vertebrate sampling efforts. Species composition, distribution, and habitat associations were noted for all vertebrates identified.

The effects of controlled burns in the sagebrush steppe community were assessed by estimating the abundance of small mammals in burned and non-burned areas. Sherman live trapping coupled with mark/recapture statistical analysis (White et. al. 1982) provided a relative indicator as to the number of small mammals present in each area. For a more detailed discussion of the research methodology refer to either the original proposal or the final report.

## Results

Ninety species of birds were documented on the Battlefield between May 18 and August 18, 1987 (Figure 1). Fifty-nine species were found within the willow-graminoid community, 33 within the coniferous forest community, 30 in the grassland-shrubland bench, 6 in the sagebrush steppe community, and 7 in the burned steppe community. Thirty-six species of mammals were found approximately two-thirds of which were located in the willow-graminoid community (Figure 1). Twenty-one species were found within the coniferous forest community, 18 within the grassland-shrubland bench, 12 within the sagebrush steppe community, and 8 within the burned steppe community. Six species of fish were found in the North Fork of the Big Hole River. The fish were typical of low gradient reaches of high mountain streams. Two species of reptiles and 2 species of amphibians were identified.

No threatened or endangered species were found on the Battlefield. The European starling (*Sturnus vulgaris*) and brook trout (*Salvelinus fontinalis*) were the only introduced species present and only the brook trout was abundant.

The final report contains a complete list of the species captured, their relative abundance, biological status, and the habitats they were associated with.

When deer mice (*Peromyscus maniculatus*) population numbers in burned communities (*Festuca idahoensis*/*Agropyron spicatum*) were compared with those in non-burn areas (*Artemisia tridentata*/*F. idahoensis*) no statistically significant difference was found. However, a significant difference was noted between the 4-month-old burn and the 16-month-old burn. Approximately 150 percent more deer mice were found in the older burn. For a more complete description of varying species diversity and abundance between burned and non-burned areas refer to the final report.

## Literature Cited

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- Mosconi, S. L. and R. L. Hutto. 1982. The effect of grazing on the land birds of western Montana riparian habitat. Pp. 221-222 in J. M. Peck and D. Dalka eds. *Wildlife Livestock Relationship Symposium* Univ. Idaho, Moscow, Idaho. 614 pp.

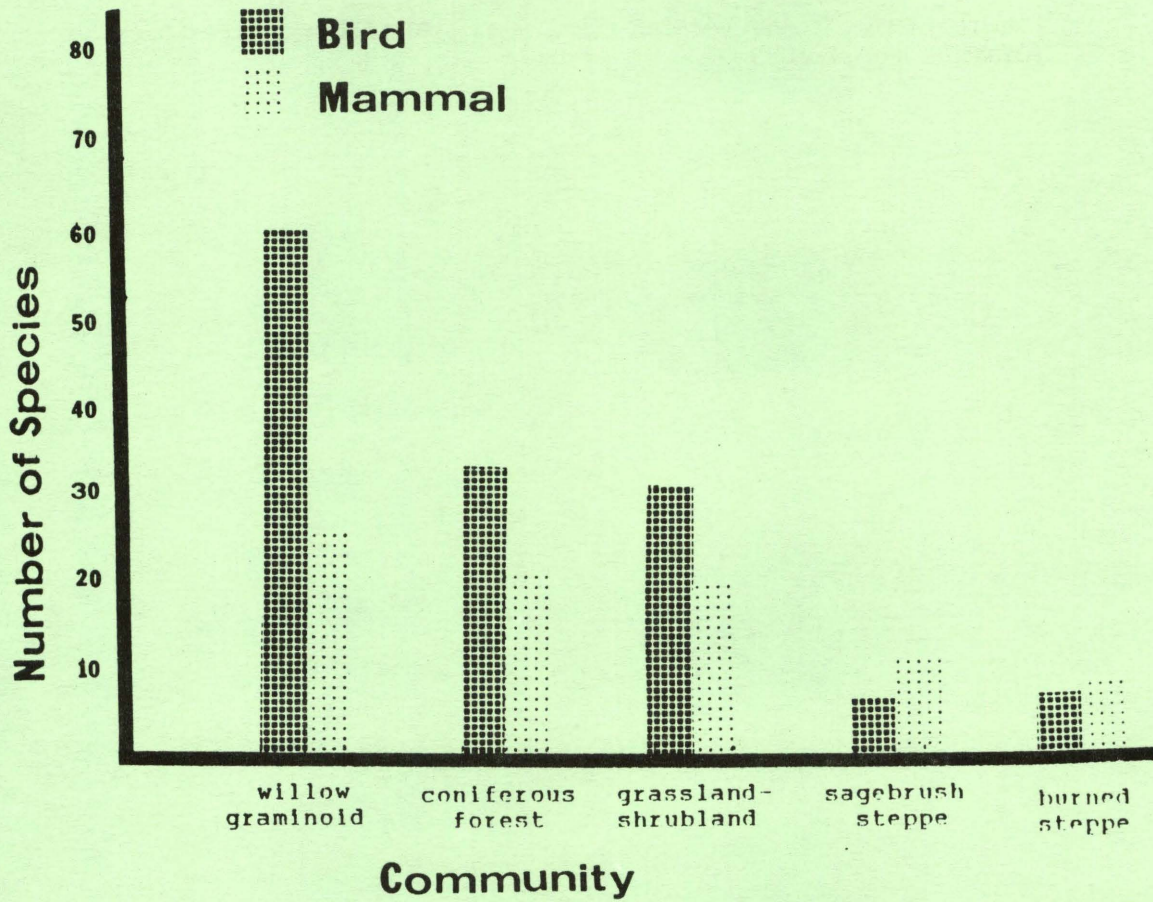


Figure 1. Number of species found on the Big Hole National Battlefield in each of five different vegetation communities between May 18 and August 18, 1987.

White, G., D. R. Anderson, K. P. Burnham, and D. L. Otis. 1982. Capture/Recapture and removal models for sampling closed populations. Los Alamos National Laboratory, LA-8767-NERP, Los Alamos, New Mexico.