

EFFECTS OF PRESCRIBED BURNING ON VERTEBRATE FAUNA IN FOUR ECOSYSTEM TYPES IN GRAND TETON NATIONAL PARK, WYOMING

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The purpose of this study is to investigate the effects of prescribed burning on birds and mammals, in Douglas-Fir, Aspen, Lodgepole pine, and sagebrush areas which are subjected to burning. Species composition, population density, dispersion, and standing crop biomass of birds and mammals in the areas to be burned are to be determined. Changes in these parameters as a result of the prescribed burns will be ascertained. Immigration and emmigration of different species into the areas following burns, and the return of former species are being investigated and documented for two years post-burn. In addition, relationships between species diversity and habitat complexity, and the effect that fire and habitat alterations have upon these relationships will be investigated.

Birds were censused by an observer who walked a fixed transect line in the area. The specific method is that described by Haapanen, 1965. A compilation of the field data will allow me to determine the species present, their density, whether they are nesting, whether they are transients, etc. The field observations will be converted to an estimate of the standing crop biomass. The density of small and medium sized mammals was determined from data obtained from a live-trapping program. Standard field methods were used, and a multiple recapture statistical method, such as that proposed by Manly & Parr, 1968, will be used to determine density. Larger mammals were observed in a systematic manner while the investigator was on the areas. Observations were recorded as well as sex, number, and activity. A pellet count along an established transect was conducted in each area to determine game-use intensity in the burn and control areas.

A burn was conducted in a sagebrush area on Burro Hill, and studies will continue through the second year post-burn. Unfortunately, the prescribed burns did not take place in the Douglas-fir, lodgepole pine, and aspen ecosystems as scheduled, due to many factors. The author will continue, pre-burn investigations in these areas during the next two years, with post-burn studies beginning immediately after burning.

At the present time, data has not been reduced to the point where specific results can be reported. The results at this point consist of descriptions and estimates of floral and faunal compositions, and until data is collected post-burn, cannot be analyzed in relation to prescribed burning.

Literature Cited

- Haapanen, A. 1965. Bird fauna of the Finish forests in relation to forest succession. *L. Annales Zoologici Finnici*. 2: 153-196.
- Marly, B. F. and M. J. Parr. 1968. A new method of estimating population size, survivorship, and birth rate from capture-recapture data. *Trans. Soc. British Ento.* 18(V): 81-89.

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