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Douglas B. Houston
University of Wyoming

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An Ecological-Physiological Study of Moose
Douglas B. Houston
University of Wyoming
Project Number 125

Fourteen months of research have been completed on the cooperative National Park Service, Wyoming Game and Fish Commission, and University of Wyoming moose ecology study.

A knowledge of population dynamics is vital to the understanding of the ecology of the moose. Approximately 400 moose jaws have been collected from hunter killed animals in an attempt to determine the age structure of the population. Jaws from winter killed animals have also been collected to determine the sex and ages of those animals dying on the winter ranges. Over 80 reproductive tracts have been collected from female moose killed in areas adjacent to Grand Teton Park. Examination of these tracts should provide valuable information about minimum and maximum breeding ages, and age specific ovulation and pregnancy rates. During the fourteen month period covered by this report an attempt was made to classify all animals observed into sex and age groups. Over 700 animals have been so classified. These classifications, repeated at different times of the year, coupled with the jaw and reproductive tract collections will yield information on the population dynamics of this moose population.

It is one thing to describe the population dynamics of a moose herd and quite another to explain and understand the factors influencing natality and mortality. Studies of food habits, weather conditions and animal behavior have been initiated in an attempt to evaluate these factors as possibly being responsible for limiting the population. Briefly, the seasonal forage preferences of the moose are being studied in all major habitat types. Winter use condition and trend transects on key forage species have also been established. Over one thousand willow plants are examined annually to determine effects of various intensities of moose utilization. Biochemical analysis of the "quality" of major forage species under various conditions of use is being completed. Quantitative descriptions of the various willow communities in relation to soil types, water conditions, and moose utilization has been undertaken. Also under study is a detailed analysis of climatological conditions as they might influence food availability and moose mobility.

A total of 56 moose have been ear tagged using succinylcholine chloride delivered by a projectile syringe. Repeated observations of these animals have yielded valuable information on the size of home ranges, distribution, and sizes of resident and migratory segments of the population. The individually marked animals will also yield information on pregnancy rates, minimum breeding ages, etc. to augment other information of this type. Blood samples are being taken from some of these animals during the tagging process. Biochemical analysis of these samples may yield a quantitative description of the condition of these animals under different and varying environmental stress situations.

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