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Aspects of Reproduction and Population Dynamics of Bobcats in Wyoming

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ASPECTS OF REPRODUCTION AND POPULATION DYNAMICS OF BOBCATS IN WYOMING

Distribution of the bobcat includes the 48 contiguous United States and limited occupance of southern Canada and northern Mexico. There are 11 subspecies, the one in Wyoming being Lynx rufus pallescens. Bobcats inhabit an amazing variety of habitat types, from Northern Boreal Forests, Southern Swamp and Cane regions to the below sea level desert of Death Valley, California. Throughout this vast area, they utilize a wide variety of prey species. One study in Wyoming revealed at least 18 different species in the stomachs of bobcats; the cottontail rabbit being predominant. A similar study in New England revealed 20 different species with whitetailed deer being the most common. In California, the wood rat has been found to be the most favored prey, and in Texas the cotton rat predominates. All of these studies point to the bobcat being an adaptable and opportunistic predator.

In Wyoming, the bobcat is widespread and can be found almost anywhere but is rare in the high mountain or dense timber regions. Areas of highest density are the canyons and low mountain ranges in the central part of the state, the Powder River breaks and the Bighorn Basin region.

The objectives of the research reported here were to determine; (1) the age to which bobcats live and the mortality rates associated with each age group, (2) the growth rate of these animals and the age at maturity, (3) reproductive parameters such as the

timing of breeding, the length of gestation, periods of fertility, litter sizes, etc. and (4) population dynamics; that is, annual fluctuations in population, the effects of trapping, etc.

Age was established on 161 animals by the technique of dental annulation (Crowe, 1972). The maximum age of animals in this sample was 12 to 13 years. From the condition of the teeth of animals this age, it appears unlikely that they live appreciably longer. My studies did indicate that these older animals were sexually active. There is no postreproductive phase of life as seen in humans.

The available data indicate bobcats from Wyoming are the largest of all the subspecies. Of the animals weighed during this study, mature males averaged 26.5 pounds, and ranged from 18.0 pounds to 37.0 pounds. Females averaged 20.0 pounds and ranged from 14.0 pounds to 28.0 pounds. Comparing these weights to those from bobcats taken elsewhere in the U. S. suggests the pallescens subspecie is significantly larger than any others for which there are published data.

Females are fecund and breed their first year of life. They generally begin to cycle in late February and will accept the male by approximately mid-March. The gestation period is 70 days, so if a female is bred during her first cycle, the date of birth will be approximately June 1. If she is not bred, she may cycle again and perhaps a third time if she still is not bred. This phenomenon accounts for the small kittens that are sometimes seen during the winter. The average litter size in Wyoming is 2.8 young per female.

Males do not reach sexual maturity by their first breeding season and are not capable of fertilizing a female until their second year of life. Spermatozoa are produced by mature males only during the breeding season. Sperm production is "shut down" in the off season and begins again the next breeding season (Crowe, 1975a).

Investigations into the dynamics of bobcat populations reveal the young survival in this area varies from 0 percent and 71 percent. Further, the available data suggest that prior to the onset of recent heavy trapping, the rate of annual mortality was approximately one-third of the population annually. This results in a possible annual population fluctuation of from 67 percent of the previous year to a maximum of 165 percent of the previous year (Crowe, 1975b).

Over the past 25 years, the survival rate of young has averaged 25 percent and this is sufficient to maintain a stable population. However, at higher removal rates, and there are indications that removal may now be 50 percent or more, it appears unlikely that populations can maintain themselves (Crowe and Strickland, 1975).

Bobcats are territorial and once territories are established, they demonstrate a strict adherence to them. If an area has reached the saturation level for a bobcat population, then there are no territories available and the young each year are relegated to less suitable areas where mortality can be expected to increase. Moderate harvest removes animals annually and opens up territories for occupance, stimulating young survival. Animals can be harvested

that would perhaps not have survived without annual cropping. Young survival also depends upon a variety of other factors, including prey availability.

If more animals are removed annually than can be replaced by reproduction, the population will decline. This may be aggrevated as the population is reduced by lowered production among the remaining females. The territorial structure allows males to know the location of females and, therefore, facilitates breeding. As populations are lowered, it may become more difficult for male and female to locate each other because of the vacated territories.

My data suggest seasons should be set late enough that the young are self-sufficient and the furs are prime (December 1), and close early enough that there is no interference with the breeding season (February 1). This would allow a 60-day season and encompass the period when furs are best. On the average, one-third of a population can be removed each given year. This rate should be adjusted depending on young survival the previous year. Requiring trappers to send in a lower jaw from their catches would allow wildlife managers to determine annually the percentage of removal from the population and the young survival. From this information, the allowable harvest could be determined and, if necessary, controlled by a tagging system.

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