

DATA ON THE WINTER ECOLOGY OF THE POLAR BEAR IN WRANGEL ISLAND

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Abstract: Analysis of the reproductive segment of the polar bear (*Ursus maritimus*) population on the study area in the Drem-Head Mountains of western Wrangel Island indicated that the distribution and, to some extent, the number of dens in specific areas of Wrangel Island are dependent on characteristics of the autumn snow accumulation which, in turn, is subject to the prevailing winds and amount of precipitation. With drastic changes in snow cover, females may change the location of their dens, particularly during years with little snow.

One hundred thirty-one dens located in snow of the current winter were thoroughly examined and partly dug out. Some pregnant females had used dens preserved in the last season's snow. Bear families remained in the opened dens for 1 day to 2-3 weeks; dens with thin roofs were the first to be left. Occasionally, the female stayed near the den and made a temporary den. The number of temporary dens grew in years with little snow. Temporary dens were usually occupied only for several days, but in one case a female with cubs stayed in the temporary den for more than 30 days.

Temperatures in the inhabited dens were found to fluctuate less than temperatures outside the dens, and the temperature inside the dens was 5-17C higher than that outside the dens.

Average litter size at the end of the denning period was 1.80 ($N=136$); this does not differ considerably from litter sizes in other parts of polar bear range. Twenty-eight percent of the litters had 1 cub, 68 percent had 2 cubs, and 4 percent had 3 cubs. The male:female ratio in litters in the western areas of Wrangel Island was 61:39; in eastern areas, it was 44:56.

Average weights of females and cubs, den numbers, and average snow depth on the study area in 1973-76 were continually changing, indicating that the population goes through certain difficulties. This may be related to unknown changes in the distribution and number of seals, the main prey of the polar bear.

Counts of dens opened in the springs of 1964, 1970, 1973, and 1976 indicate an increase in the number of breeding female polar bears in the Wrangel Island area.
