DEN SITE CHARACTERISTICS OF PRINCE WILLIAM SOUND BLACK BEARS.
Sterling Miller and Dennis McAllister, Alaska Dept. of Fish and Game, Anchorage. August, 1982.

Black bear dens utilized in winter 1980/81 and 1981/82 by bears radio-collared in connection with population identity studies in Prince William Sound (Modafferi, in prep.) were located, marked and measured. The purpose of this work was to provide baseline data on characteristics of Prince William Sound black bear den sites. Such data are valuable in light of increased developmental activities anticipated in the area, especially logging. These observations also provide comparison data to that being collected on the Kenai Peninsula (Schwartz and Franzmann 1981) and along the upper Susitna River (Miller and McAllister 1982).

Mark Chihuly provided valuable assistance in this project in 1982 as did Chuck Schwartz in 1981. Julius Reynolds also assisted the project in various ways. Ron Modafferi provided historical data and his cooperation was essential and appreciated.

All radio-collared bears were in dens when bears were located by fixed-wing aircraft on 15 April 1981. However, 2 bears, both males, had left their dens by 23 April 1981 when dens were marked; only approximate locations and elevations are available for the dens of these 2 males. One 1981/82 den was also only approximately located because of radio failure. Nine bears, all
females, were still in dens on 23 April 1981 and these dens were marked with radio-collars, flagging and/or evident topographic features. In 1982, 6 new dens were located and marked on 9-13 April.

Marked dens were visited in the summers of 1981 and 1982 and their characteristics were noted and dens were measured. The measurements followed those outlined by Schwartz and Franzmann (1981) with the addition of a subjective characterization of relative quality on a scale from 1 (poor) to 5 (excellent). These data are presented in Table 1.

Of the 15 measured dens, 8 were in mature hemlock (Tsuga spp.) forests, a forest type likely to be heavily exploited by increased logging efforts. Hollow trees were used as dens by 3 bears denning in hemlock forests (Table 1).

Interestingly, 14 of the 15 dens examined were in natural cavities (3 in hollow trees, 4 in rock caves, 2 under hemlock roots and 5 under large boulders on talus slopes) (Table 1); only 1 den was completely excavated by a radio-collared black bear.

In 12 cases a determination or reasonable guess could be made on whether an examined den had been previously used by a black bear. In 9 of these previous use by black bears was evident or suspected (Table 1).
Frequency of reuse of the same den by the same individual appeared low, although individual bears tended to den in the same general vicinity in successive years. One of the dens visited in 1981 was reused by a radio-collared bear in 1982 (den #5). Den #1 was occupied by a non-radio-collared bear in 1981/82, Den #6 was not occupied in 1981/82; the other dens found in the first year of the study were not revisited so occupancy in the second year was not determined for these dens (Table 2). The mean distance between the different dens used by 7 individuals in 1980/81 and 1981/82 was 1.1 miles (range = 0.4 - 1.9, SD = 0.6).

The time bears spent in 1980/81 dens could not be determined as the last flight in 1980 was on 29 September at which time all bears were still out. Emergence from dens seemed concentrated in the first 2 weeks of May for females and the last two weeks of April for the 2 males (Table 4). In 1982 data on time of entrance to and emergence from dens were not collected.

Aspects of known dens are illustrated in Figure 1. The mean slope of 15 dens was 38° (range = 10 - 62°, SD = 13.6°) (Fig. 2). The high frequency of dens in natural cavities probably contributed to the apparent absence of trends in the slope and aspect data; perhaps the bears select for good cavities and these are independent of slope or aspect.
REFERENCES CITED


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<th>Vegetation</th>
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(continued on next page)
DUG CA VITIES

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<th>Vegetation</th>
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<th>Wg. (cm)</th>
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* Same bear used the den in 77/78 (w/1@1), and probably in 78/80; not in same den in 76/77, unknown den located in 78/79.
** Subjective characteristics of quality, 1 = Poor and 4 = Excellent.
*** Den #1 was reused in 81/82 by an unknown black bear.
**** Den #6 was not occupied in '81-'82.
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<td>Bear #146 M @ 10</td>
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### Table 3. Denning History of Radio-collared Black Bears in Prince William Sound, Alaska (prioritized for dens by year, bear number and reproduction status given).

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Table 4. Den entrance and emergence dates of radio-collared Black Bears in Prince William Sound, winter of 1980/81.

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* Last flight in fall was on 29 September when all bears were out of dens.

** Range represents last observation in den & first observation outside den.