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7-31-1989

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### Recommended Citation

Goodrich, John M. and Stiver, San J. (1989) "Co-occupancy of a den by a pair of Great Basin black bears," *Great Basin Naturalist*. Vol. 49 : No. 3 , Article 6.

Available at: <https://scholarsarchive.byu.edu/gbn/vol49/iss3/6>

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## CO-OCCUPANCY OF A DEN BY A PAIR OF GREAT BASIN BLACK BEARS

John M. Goodrich<sup>1</sup> and San J. Stiver<sup>2</sup>

**ABSTRACT.**—An adult male and an adult female black bear (*Ursus americanus*) were found in the same den in the Carson Range of the Sierra Nevada in Nevada. Co-occupancy of dens is very rare, and such behavior has never been previously reported for adult bears of opposite sex.

Black bears are solitary animals except when mating, accompanied by cubs, or investigating areas of abundant, clumped food sources such as garbage dumps. They den almost exclusively as solitary individuals except for females accompanied by newborn cubs or yearlings (Beecham et al. 1983, Johnson and Pelton 1979, Lecount 1983, Rogers 1987, Schwartz et al. 1987, Tietje and Ruff 1980); however, Schwartz et al. (1987) reported unusual cases of co-occupancy of black bear dens. They found four instances of mothers denning with two- and four-year-old daughters and an additional case in which a mother and her yearling male denned with a two-year-old female that was not her offspring. Two reports of cannibalism on adult female bears by larger bears (Rogers 1987: 54, Tietje et al. 1987) suggest that group denning should be avoided, especially by adult members of the opposite sex. Adult males are usually much larger than adult females and thus more capable of cannibalism. In this report we describe co-occupancy of a den by an adult male and an adult female black bear.

As part of an ecological study of black bears in the Carson Range of the Sierra Nevada in Nevada, we entered dens in February and March 1988. On 21 February 1988 we found a four-year-old, 41-kg, transmitter-equipped female bear in the same den with an eight-year-old, 118-kg male (ages were determined by the cementum annuli technique [Stoneberg and Jonkel 1966]). Radio locations indicated that the female occupied the den all winter. There were no tracks in the snow to indicate that the male had recently entered the den, and deep snow (1–2 m) would have made travel to the den difficult after Decem-

ber 1987. Regardless of the date of entry by the male, follow-up radio locations indicated that the pair remained at the den site together until the end of April.

The den was under a large boulder at about 2,471 m in elevation and appeared to be partially excavated. There were two entrances, one open and the other blocked by snow. The floor of the den, approximately 4 m<sup>2</sup>, was covered by a large amount of brush in which each bear had a separate depression or nest 80 cm apart.

It is unclear why such unusual behavior may occur. Energy conservation through heat transfer between den mates is one possibility, but Rogers (1987) found that bears did not effectively raise the temperature of their dens in Minnesota. Since the Great Basin bears were not touching, it is doubtful that a significant amount of heat was transferred between the two. Another possibility is that the female could have been in estrus, as noted in Rogers's (1987) study in Minnesota. Although we did not notice whether the female was in estrus when we entered the den, she was in estrus when recaptured on 16 June 1988, and on 17 June we saw her copulating with the male with whom she denned.

We thank the Nevada Department of Wildlife, Nevada Agricultural Experiment Station, and the Mzuri Wildlife Foundation for support of this study. Joel Berger, Carol Cunningham, and Linda Kerley made helpful comments on an earlier draft.

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