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Longevity and reproductive performance in old-aged brown bears in Alaska.

Harry V. Reynolds, III, Alaska Department of Fish and Game, 1300 College Road, Fairbanks, Alaska 99701 USA

Victor G. Barnes, Jr., National Biological Survey, Alaska Science Center, 1390 Buskin River Road, Kodiak, Alaska 99615 USA

Roger B. Smith, Alaska Department of Fish and Game, 211 Mission Rd., Kodiak, Alaska 99615 USA

Gerald W. Garner, National Biological Survey, Alaska Science Center, 1011 E. Tudor Rd., Anchorage, Alaska 99503 USA

Most records for longevity of brown bears (*Ursus arctos*) have been gathered from zoos rather than from wild populations. Arguably, because of the protective environment of zoos, with attendant veterinary care and ready access to food, bears may reach ages that are unlikely to occur in wild populations. Because of hunting or natural mortality, most studies assume that wild bears die by the age of 20-25 years, or, if alive, provide negligible additional productive capacity to the population, due to reproductive senility. Our records show that even though their representation in populations is diminished by age 20, both males and females are present and reproductively active well after that age.

We describe two well-documented records of maximum ages for free-ranging brown bears in Alaska. A female from Kodiak Island near Karluk Lake (57°N, 154°W) was killed by a hunter during October, 1991, at a minimum known age of 34 years. A male from the western Brooks Range (69°N, 162°W) was last observed alive during May, 1994, also at the age of 34 years.

Although both bears were members of hunted populations, hunting pressure and other factors that allowed the bears to survive to advanced age differed. Hunting pressure on Kodiak Island, is high due to the presence of large bears desirable to many hunters and to the high bear population density. However, hunting regulations do not allow the kill of females accompanied by cub or yearling offspring. Therefore, depending on the timing of hunting seasons, productive females may only be vulnerable to hunter kill during the fall season of the year in which they weaned offspring and then bred, or 1 of 6-8 seasons, depending on whether they wean young as 2- or 3-year-olds, and whether they produce a new surviving litter the following year.

In contrast, in the western Brooks Range, although males are vulnerable to hunters during any open season, hunting pressure is light because the size of bears is relatively small and therefore less desirable to hunters, the population density there is relatively low, and the availability of other species to hunt is minimal.

We further compare these ages to those established from cementum annuli in premolar teeth for populations of both captured and hunter-killed bears in 4 areas within the state. To assess the potential for female reproductive senility, we compare records of production among 4 age groups of females, aged 6-10 years, 11-15 years, 16-20 years, and 21-28 years, captured during research studies in these same 4 areas of the state. The potential for male reproductive senility was assessed both genetically and through observation.

ABSTRACTS

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