



Bear Hibernation Sites

The Question: Where do black bears den in the park?

Bears enter dens immediately prior to winter hibernation, a critical stage in the black bear life cycle. Location, habitat, and physiographic characteristics of den sites directly influence black bear health. For example, den sites with deep snow cover are preferred given that they are more insulated than open dens, thereby allowing bears to conserve fat reserves through reduced energy expenditure on thermoregulation. Additionally, because fleeing a disturbed den site results in greater energy expenditure by bears, secure sites free from human and other animal disturbance may allow bears to emerge from dens in better condition come spring. This results in greater survival and reproductive output for park bears, ultimately leading to a more productive bear population. A prior study (1985–1992) suggested that preferred den sites might be limited in the park. Because the number of black bears in the park is low (~24 individuals), scientists studied den-site selection in the park to determine if special protection of this essential habitat was warranted.

The Project: Identify important black bear den-site characteristics and determine if factors influencing den-site selection have changed over the last 20 years.

From 2003–2006, Roger Baldwin and Louis Bender, from New Mexico State University and the U.S. Geological Survey, New Mexico Cooperative Fish and Wildlife Research Unit, used radio collared bears to locate dens during hibernation periods. They compared location, habitat, and physical characteristics of these den sites to those of dens observed during a previous study conducted from 1985–1992 to determine if important den-site characteristics had changed over time. The characteristics analyzed included distance to roads and trails, elevation, slope, aspect, canopy height, and cover type. Though previous studies have used models to predict den locations, this study only used known sites in the analysis. As a final step, the researchers mapped historic versus contemporary den-site locations to illustrate potential differences in den-site selection between the two periods.



Above: The entrance to a den.
Below: Bears in the park prefer rock dens.

The Results: Steep slopes consistently proved to be the most important factor influencing den-site selection, although contemporary dens were found closer to trails and at lower elevations than in the past.



The 22 dens found during this study were all rock dens whereas of the 35 dens found previously, 21 were rock dens, two were under trees, one was excavated in the ground, and 11 were uncategorized.

Contemporary bears favored dens on steep slopes (providing excellent soil drainage during snow melt and protection from humans and predators) and north and east facing aspects with a 15 meter canopy (providing shade and snow cover). Unlike their predecessors (1985–1992), contemporary bears also selected den sites at lower elevations and closer to roads, supporting related research results on movement and diet indicating the park's bears are more habituated to humans than in the past.