

Black bear

Ursus americanus

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DESCRIPTION

Taxonomy and Basic Description

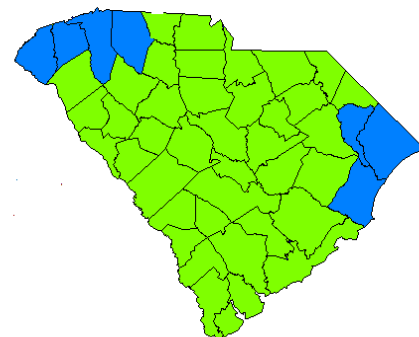
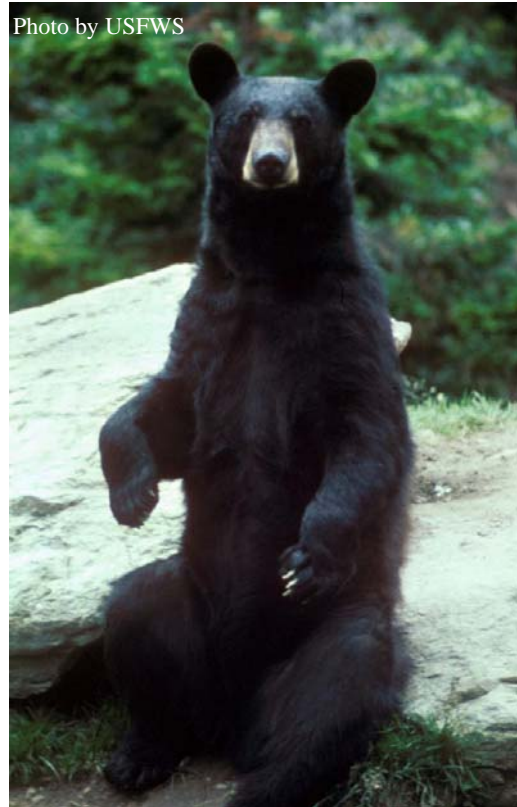
Pallas first described the American black bear in 1780. Black bears are the most common bear in North America, occurring in 39 of the 50 United States and throughout Canada. Usually covered in a shaggy black coat, these bears can vary in color depending on subspecies. Bears found west of the Mississippi River range from white, through chocolate, cinnamon and blonde while those found east of the river are typically black. Occasionally, the bears will display a white chest blaze as well (Wilson and Reeder 1993).

Black bears are typically 1.5 m (5 feet) long (Wilson and Burnie 2001). In South Carolina, the average adult male weighs between 82 and 159 kg (180 and 350 pounds) (Willey 1995; Harter 2001); however there are some harvest reports of bears exceeding 226 kg (500 pounds) (SCDNR unpubl. data). Adult female average weights are between 56 and 69 kg (123 and 152 pounds). Cubs usually weigh between 200 and 450 g (7 ounces to 1 pound) at birth. These bears have small eyes and rounded ears with a long snout and prehensile lips. Their ears are usually more erect than those of the brown bear (*Ursus arctos*), and they lack the characteristic shoulder hump of that species (Wilson and Burnie 2001).

Black bears can stand and walk on their hind legs but usually move about on four legs. Their hind legs are slightly longer than their front, giving the bear a flat-footed, slightly shuffling gait. Each paw has five sharp claws for digging, tearing and climbing. The black can sustain enough force with a front paw swipe to kill an adult deer. Ninety-five percent of this bear's diet, however, is vegetarian including nuts, roots, berries, shoots buds and fruits. They may become accomplished fishers or feed on fawns when other foods are sparse (Wilson and Reeder 1993).

Status

Black bear populations are described as vulnerable (S3) in South Carolina and secure globally (G5) (NatureServe 2005). There are two populations of black bear in South Carolina: one is located in the mountainous region along the South Carolina/North Carolina border and the other in the upper coastal plain. Black bear in the mountains of South Carolina seem to be expanding their range southward and



westward and their population is increasing. The upper coastal plain population is presently stable. However, loss of viable habitat through land conversion threatens the status of this species within South Carolina.

POPULATION SIZE AND DISTRIBUTION

The mountain black bear population of South Carolina is located primarily in Oconee, Pickens, Greenville and Spartanburg Counties; the coastal population is found in Georgetown and Horry Counties.

In 1999, a study was initiated to determine general biological characteristics of black bears in the northern coastal plain of South Carolina. With known movements of captured bears into North Carolina and suspected movements of North Carolina bears into South Carolina, researchers felt this population estimate was low (Harter 2001). There were 25 and 19 road kills in the coastal area for 2003 and 2004, respectively. Forty-nine complaints resulted in one bear relocation in the lowcountry in 2004 with no data available for 2003.

Black bear populations in the upstate region of South Carolina are increasing and expanding. A recently completed interstate and interagency study conducted in a section of the mountains of North Carolina, South Carolina and Georgia indicated a preliminary population estimate of approximately one bear per square mile. (Settlage et al. 2004) This study would indicate that approximately 900 bears are located in the upstate. Previous estimates had been 300 to 500 bears.

There are an estimated 200 to 250 bears established in roughly 300,000 acres of occupied bear habitat in Horry, Georgetown and Marion Counties. Of that habitat, around 44,000 acres is protected property; however, these acres are scattered and disjunct (Jamie Dozier SCDNR, pers. comm.).

HABITAT AND NATURAL COMMUNITY REQUIREMENTS

In coastal South Carolina, bears typically use early successional areas, bottomland hardwoods or mixed pine-hardwoods as well as Carolina bays. Areas used less often include upland hardwoods, pine plantations, existing developments or areas currently being developed.

The average home ranges of males and females in South Carolina were found to be significantly different in the coastal plain study (Harter 2001). Male home ranges averaged 80.1 km^2 (19,793 acres²) and female home ranges averaged 30.4 km^2 (7,512 acres²). Movement data also indicated that all bears reduced home range size during winter months. Average home range size was reduced 70 percent (67 percent for males and 76 percent for females) during winter months. Even though home ranges were reduced, bears continued to move throughout the year.

Home range size for the upstate population was 44.1 km^2 (10,897 acres²) for males and 16.6 km^2 (4,102 acres²) for females (Butfiloski 1996). Female bears in the upstate population utilized young yellow poplar stands less than 10 years old and riparian zones 30 to 50 years old more often than expected and used yellow poplar stands 11 to 30 years old and pine stands over 10

years old less often than expected. Analysis of road disturbance indicated a significantly greater presence of bears within 500 meters of primary logging roads in the study area before the roads were opened than after the public was allowed in the area (Butfiloski 1996).

CHALLENGES

The primary challenge to South Carolina's bear population appears to be residential and commercial development. Human populations in the counties with existing bear populations grew 20.1 percent from 1990 to 2000. Persons per square mile averaged 213.4. Thirty-three percent of the human populations in the six counties mentioned live in a rural environment (SC Statistical Abstract 2005; US Census Bureau). Humans have varying reactions to bears but generally do not tolerate bear activity near residential or commercial development. Bear hunting has also been controversial in many states (Maryland and New Jersey Status Reports 2003).

The coastal bear population is becoming more fragmented due to highway construction, urbanization and general development. More protected contiguous acreage is available for the mountain population but human population growth and subsequent development adjacent to and between these properties may preclude expansion and fragment the population. Some areas of the state offer good bear habitat but are isolated from current bear populations by development.

Education of the general public is the key component to bear population expansion and, in some areas, survival. While bears learn to live with people, people have a hard time living around bears. Educational programs, bear-proof demonstration kits and displays and brochures are all effective.

CONSERVATION ACCOMPLISHMENTS

South Carolina Department of Natural Resources (SCDNR) personnel have successfully cooperated with sportsmen groups, industry, other state and federal agencies and universities to enhance black bear habitat and conduct black bear research and management in South Carolina. Cooperative efforts have included hard and soft mast surveys, black bear scent station surveys, black bear trapping and research, DNA research and analysis, nuisance bear control, bear related legislation, co-sponsoring bear related meetings, wildlife management area litter collection, educational and nature related youth events, youth hunting opportunities and shrub plantings. South Carolina is also a member of the Southern Appalachian Black Bear Study Group with three nearby states (Georgia, North Carolina and Tennessee). This group meets to discuss and monitor bear related research and activities. SCDNR acted as a leader in many of these activities but were also a cooperator in many others. Many individuals within these groups were knowledgeable of local fauna and flora. Cooperative projects satisfied their need to be actively associated with enhancing the black bear and generally aligned them with SCDNR. Cooperators were also more inclined to protect the resource they actively surveyed and managed. Data collected has been consistent with SCDNR data collection and no known data bias has occurred. Benefits to the SCDNR included the ability to draw upon local knowledge, funding, constituency support, interaction with other knowledgeable groups, education, area protection and enhanced data. Cooperator benefits included interaction with SCDNR personnel, educational opportunities, publicity, hands on projects, improved public image and increased industry employee moral.

Cooperation with other state and federal agencies has allowed for a pooling of data, manpower and equipment, funding opportunities and information sharing. Cooperators included US Forest Service, Clemson University, University of Tennessee, Georgia Department of Natural Resources, Tennessee Wildlife Resources Agency and North Carolina Department of Environment and Natural Resources, South Carolina Department of Parks, Recreation and Tourism, South Carolina Department of Transportation, Upper South Carolina Bearhunters and Houndsmen Association, Oconee County Bearhunters, South Carolina Sporting Protection League, Duke Power Company, Crescent Resources, Fluor Daniel Company, Davis and Floyd Inc., Hobbs & Upchurch Company and local Boy Scout troops. These activities and cooperators have greatly enhanced knowledge and habitats related to the black bear in South Carolina.

SCDNR personnel in cooperation with the National Wild Turkey Federation, US Forest Service, and others annually plant approximately 50 acres of wildlife openings in bear range. About 250,000 acres of bear habitat in South Carolina is publicly owned. Considerable work has been completed to improve access roads in the Jocassee Gorges, which is a 32,000-acre area owned by SCDNR. SCDNR personnel serve on the Southern Appalachian Black Bear Committee and the Southeastern Black Bear Committee. Posters on "Cooperative Black Bear Management Activities of the South Carolina Department of Natural Resources" were presented at the International Bear Conference and the Southeastern Association of Wildlife and Freshwater Fisheries Conference during 2004.

SCDNR was also part of a multi-state and agency research project to look at the effectiveness of DNA sampling to monitor black bear abundance in the southern Appalachians. Partners included the natural resource agencies of Georgia, North Carolina, and Tennessee as well as the University of Tennessee, US Geological Survey and US Forest Service. This pilot study was initiated during the summer of 2003 to determine whether genetic sampling for population estimation was feasible and to develop appropriate sampling regimes to obtain desired levels of precision. The overall goal of this study was to establish the proper sampling regimes and protocols for the southern Appalachian region and provide baseline population abundance estimates. The study area was divided into two sections based on relative densities of black bears in the region, the northern study area in the northwest portion of Great Smoky Mountains National Park in Tennessee and the southern study area on national forest lands in Georgia, South Carolina and North Carolina. Hair-sample sites consist of a barbed-wire enclosure with bait. Sites were checked for samples once a week for ten weeks and each hair sample with more than five hairs was collected. Twenty-eight of these sample sites were located in South Carolina. Results of this study should be available during the summer of 2005. A poster entitled "Effectiveness of DNA Sampling to Monitor Black Bear Abundance in the Southern Appalachians" (Settlage et al. 2004) was presented at the Southeastern Association of Wildlife and Freshwater Fisheries Conference. Results of this study indicated approximately one bear per square mile.

The vast majority of survey, study, cooperative efforts and research in South Carolina have been done in the upstate area. The Harter study (2001) has been the only major study completed on coastal bear. Various survey techniques have been tried with little success on the coastal population. New methodologies such as the DNA studies may be successful but are expensive and time consuming.

CONSERVATION RECOMMENDATIONS

- Distribute educational brochures and posters.
- Place bear-proof trashcans and food lockers at all public facilities in bear habitat.
- Consider initiation of a program encouraging private housing and industry in bear areas to use bear-proof trashcans and food lockers.
- Continue or initiate DNA studies of bear populations in both the coastal plain and mountain ecoregions.
- Initiate studies of bear travel corridors in the coastal plain and zone ecoregions.
- Consider land acquisition to connect isolated populations of black bear.
- Consider a multi-phase project of repatriation of bear to other regions of the state including efforts to survey human concerns and education of landowners. Facilitate such repatriation with long-term monitoring.

MEASURES OF SUCCESS

A reduction in nuisance complaints would indicate a successful education program. Bear sightings and reproduction in other areas would suggest an expanding population. Use of bear-proof containers could be easily measured through survey. Repatriation success could be measured in successfully reproducing bear that are staying in the repatriation area without sufficient human conflict.

LITERATURE CITED

- Butfiloski, J.W. 1996. Home range, movements and habitat utilization of female black bears in the mountains of South Carolina. M.S. Thesis, Clemson University. Clemson, South Carolina. 53 pp.
- Carr, P.C. and K. Burgess. 2003, New Jersey Status Report, 17th Eastern Black Bear Workshop. Stanton, New Jersey. Pp 65-76.
- Harter, H.W. 2001. Biology of black bears in the northern coastal plain of South Carolina. Thesis, Clemson University, Clemson, South Carolina. 89 pp.
- Spiker, H. 2003. Maryland Status Report; 17th Eastern Black Bear Workshop. Stanton, New Jersey. Pp 44-46.
- Willey, R.D. 1995. Population dynamics and denning ecology of black bears in the mountains of South Carolina. M.S. Thesis, Clemson University. Clemson, South Carolina. 56 pp.
- Wilson, D.E., and D.M. Reeder (eds). 1993. Mammal Species of the World. Smithsonian Institution Press, 1206 pp.
- Wilson, D.E. and D. Burnie (eds). 2001. Animal: the definitive visual guide to the world's wildlife. New York: D.K. Publishing. 624 pp.

NatureServe. 2005. An online encyclopedia of life [Database]. Version 1.6. Association for Biodiversity Information. <http://www.natureserve.org/>.