

Black Bear Ecology and Colonization in Eastern Kentucky

By David S. Maehr

When Daniel Boone led settlers through the Cumberland Gap in 1775, the black bear outnumbered white-tailed deer, elk, and every other large mammal in eastern Kentucky's forests. By the 1850s, it was gone. Today, the black bear is once again a part of Pine Mountain, Cumberland Gap, and the regenerating forests of the state's mountainous region. With widespread forest clearing and unmitigated harvest now a thing of the past, Kentucky is once again an attractive place to live for an increasing number of bears. Our radio telemetry study, funded by the Kentucky Department of Fish and Wildlife Resources, began in 2002. Since then my graduate students and I have captured and radio-collared 79 black bears and have collected thousands of locations on these animals. Some of the bears wear global positioning system (GPS) collars that collect up to 24 locations each day. These data have been useful in identifying key habitats, population centers, and travelways. For the most part, study animals inhabit mixed deciduous hardwood forests growing on steep slopes and at relatively high elevation. The primary population centers identified thus far include Pine Mountain in the vicinity of Kingdom Come State Park and the area around Cumberland Gap National Historic Park. Bears are also found in and around Big South Fork National Recreation Area in McCreary County following introductions of Tennessee bears in the mid-1990s. Another collaboration with Indiana University of Pennsylvania used hair-snaring devices to census other areas where access for trapping and collaring is more difficult. This work, which relies on genetic analyses of hair samples collected at bait sites, will help us estimate population numbers and better understand the current distribution of the growing bear population.

Another element of our research involves Forward-Looking Infrared Radiography (FLIR) cameras to document the distribution and abundance of bears during a brief period when leaves have fallen from trees but before the bears disappear into winter dens (hibernacula). Hannah Harris's dissertation work detailed the attitudes of local human residents who live in Kentucky bear range. She found an interesting relationship between the local communities and bears that is supportive of the bear yet ambivalent about official efforts to manage the population and its wild habitat. Already, bears are a focal point of activity for summer visitors to Kingdom Come State Park where they are routinely seen in and around picnic areas. This situation has created challenges for managers of natural resources

Photos courtesy, John Cox



who must balance the interest of the public with the welfare of individual bears and their growing population. Sadly, a fed bear often winds up as a dead bear.

The black bear in Kentucky lives much like its relatives in neighboring Appalachian states. Most females choose small caves and rock outcrops for den sites. These are usually cozy, secluded spots near cliff lines and other rugged topography. They emerge from their dens in late spring, mate during the summer, and feast on acorns, insects, and hickory nuts in the fall—putting on fat for up to five months of hibernating. During this time—usually early February—the cubs are born. We have documented litters ranging in size from two to five. Clearly, nutrition does not seem to be a problem for this population, and we have had several females that have exceeded 200 pounds. Female bears tend to be older than males—likely a function of the wider movements of males and their tendency to encounter highways and people more often than females who are often accompanied by small cubs. As elsewhere, males are larger than females. A large male will exceed 400 pounds. Of more interest and concern is how and if the population will continue to grow and colonize vacant range. Right now, most resident adults live along Pine Mountain, with home ranges that follow the topography of this distinct geological formation. We believe that there is lots of good habitat to the west, but few if any females live west of Pine Mountain. Will a black bear population once again inhabit the forests of the Daniel Boone National Forest? Only time will tell. Ongoing studies will seek to understand the influence of roads, towns, mining, and other human activities on the westward expansion of the Kentucky black bear.

In the meantime, our research operates throughout the year: tracking collared animals by aircraft, downloading GPS data via satellite, capturing bears throughout the summer, and visiting maternal dens during the winter. Although bears hibernate during the winter, we do some of our most exciting work during this season. Dave Unger's dissertation work demonstrated that Kentucky black bears are producing lots of cubs; the average litter size of 3.1 is more than any other nearby population. Annual home ranges are nearly 10,000 acres for females and almost 100,000 acres for males. They prefer forests with plenty of oaks and seem to travel parallel to Pine Mountain and other ridge lines.

Black bears are primarily vegetarian, but bears will eat pet food, garbage, and other human-made food sources if people are not careful. These situations have led to irate homeowners, shootings, and dead bears. Getting along with bears is not difficult so long as we don't store food and wastes haphazardly. When asked what to do when you encounter a bear, I say to enjoy the opportunity by watching quietly and making room for the animal to pass. Attacks are extremely rare and can be virtually eliminated if hikers and other wilderness recreationists travel in groups.

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Black bear researchers at the opening of a den in Eastern Kentucky.

