

# What the DNR is Finding Out About West Virginia Black Bears

By Chris Ryan

It seems that all West Virginians have a few things in common -- they are generally polite, hospitable people -- and everybody has a bear story. Whether they've seen one on a visit to Canaan Valley, sitting on their porch in Marshall County, driving down Route 19 through Nicholas County, or on a trip to our State Capitol, most everybody has a tale of seeing our state animal.

I always get excited, but am rarely surprised, to see a black bear. However, when my wife, Beth, asked me to go to the grocery store last summer in Charleston I gladly obliged, but was taken back when I heard someone talking about a bear behind the store. I just had to investigate the report of the excited individual. Sure enough, on a dark, rainy Saturday night there sat a large male bear behind the Wal-Mart next to the movie theater. I raced home to gather my equipment and returned quickly to the scene. The bear had two orange ear tags, meaning that it had already been captured as a nuisance animal. While I was unable to capture the bear that night, Eric Richmond, a wildlife manager in District 5, ending up capturing the bear four days later at the same location. The sad fact is that this bear had to be destroyed for repeated nuisance



A mother with her yearlings.

Jeff Craig

activity because people would not secure their garbage or stop feeding birds when a bear visited their feeders.

The West Virginia Division of Natural Resources receives approximately 1,000 nuisance bear complaints a year. The disappointing fact, however, is that if people just put up their bird seed and trash, and fed their outside pets before dark and picked up the leftovers, many of these calls could be eliminated. It is illegal to feed bears in West Virginia, but many people continue to inadvertently feed animals by placing food items outside. If a bear continues its nuisance activity or is a threat to human safety, DNR personnel have no option but to humanely kill the bear. While DNR Wildlife Resources and Law Enforcement sections handle bear calls in appropriate manners, it is difficult for an agency on a limited budget and one that is often understaffed to effectively communicate the message that if a bear repeats its nuisance activity it will ultimately have to be destroyed.

The common sightings of black bears, the tremendous increased interest in black bear hunting and, yes, even the increased number of nuisance calls is a result of a tremendous success story here in West Virginia. Our state animal has gone from an estimated low population of 500 in 1970 to a population estimate

of 10,000 to 12,000 in 2007. Hunting seasons that are based on sound wildlife research are the primary reason for the tremendous increase in our bear population. Joe Rieffenberger, the "Grandfather of Bear Management" in West Virginia, led a project with other wildlife managers and biologists in the 1970s. They discovered that bears typically go to their winter dens in a predictable order. His research showed that pregnant females are normally the first bears to enter their dens. By adjusting hunting seasons accordingly, biologists were able to protect a larger segment of the population but still allow hunting. Thus, a slow growth of the bear population began.

The DNR continues to have a large black bear research and monitoring program; however, much of that research has shifted from the area of protection to managing black bear populations at sociologically acceptable levels. Cultural carrying capacity -- the number of bears that people will tolerate -- is generally determined by the DNR through public surveys or the number of nuisance complaints received at its District offices.

At the heart of the bear research and monitoring program is the demographic (reproductive and survival rates) data that wildlife managers and biologists collect. The DNR has two study areas: one in the mountain counties primarily centered in Randolph and Tucker counties, and a southern study area in Kanawha, Boone, Fayette and Raleigh counties. Data from this project has led to changes in hunting seasons in southern West Virginia and future recommendations will likely be based on these valuable data.

Black bears breed from May through September and have what is known as delayed implantation. This means that the fertilized egg does not implant in the female's uterus until approximately the second week of December. With a "true" gestation period of only about 6 to 7 weeks, a female bear will give birth to her cubs in late January. At birth the cubs only weigh 6 to 8 ounces, have their eyes shut, have very little hair, and are totally dependent on their mother. The cubs open their eyes at 42 days and emerge from the den with their mother in late March through early April. At that time the cubs normally weigh about five pounds, can

climb trees by themselves, and start exploring our West Virginia hills. They remain with their mother for 18 months, at which time she chases them off and breeds again. This means that the normal cycle between litters is two years.

Our research has shown that bears typically start having cubs at three and four years of age in the southern and northern study areas, respectively. In addition to reproducing at an earlier age, bears in the southern study area typically average 2.8 cubs per litter; whereas, bears in the mountain counties average 2.3 cubs per litter. Nearly every female on both study areas that were available to reproduce (that is they did not have yearlings with them) produced a litter of cubs. The higher reproductive rates in southern West Virginia are likely a combination of greater food supplies and shorter, less severe winters.

Research has also shown that the survival rates of female bears remain very high -- between 83 to 87 percent across the study areas. It is the high female



Steve Ratsch

Lip tattoos are used to identify individual bears.



Steve Ratsch

The author records data collected from a tranquilized bear.





Jeff Craig

survival and strong reproductive rates that have enabled the expansion of the bear population. Where bear populations are above the cultural carrying capacity, reducing adult female survival is the key to controlling and managing bear populations and reaching management goals.

While one of the primary purposes of the bear project is to gather demographic data, the DNR works on many other aspects to best manage the state's bear population. Last year the Wildlife Resources Section contracted a private research firm to conduct an extensive survey of West Virginia residents to primarily find out their opinion of the black bear population in the state and in their respective regions. While many residents thought the bear population was about right, people from different regions had varying opinions. For instance, a greater number of residents in the mountain counties thought the bear population should be reduced, but more residents in the western part of the state thought the population should be increased. Managers have used this valuable survey information to help set management goals based on a cultural carrying capacity, or what the public wants.

DNR personnel also conducted a survey of West Virginia bear hunters in 2007 to determine success rates, distribution of hunters across the state, the effectiveness of special hunting seasons, and to determine the economic impact of bear hunting. West Virginia hunters that specifically target bears while hunting spend nearly \$31 million a year on their sport. This significant financial impact helps to support many local businesses in our state. Additional analyses are being conducted by the economics faculty at West Virginia University to determine the total economic impact on the state's economy. This important data also helps to identify the number of bear hunters who primarily use archery equipment, gun hunt without dogs, or use dogs while gun hunting as well as information on where they hunt.

Black bears are typically immobilized with Telazol before being handled. Federal guidelines suggest that bears should not be immobilized within 45 days of hunting season so that the meat would not be consumed until after the drug was out of the bear's system. However, the amount of time the drug remained in the bear's system had never been tested anywhere in the world until Wildlife Resources Section biologists took the lead and designed a project that examined this retention time. The results from the test, just finished in 2007, showed that the drug was gone from a bear's muscle and liver within 14 days and was completely gone within 21 days. These results should enable managers to handle bears closer to hunting season, whether it's a nuisance situation or on a research project.

DNR wildlife biologists have also designed a new method that will serve as the basis for a new black bear

management plan. It uses a ranking system to evaluate the feasibility of different hunting methods within each county and then assigns each area into a management strategy. By quantifying how the season structure is set, it helps to better explain why management decisions are made and helps to take opinion out of the decision.

One of the new, exciting aspects of the bear project started in August 2007 was the purchase of 23 GPS (Global Positioning System) radio collars for our southern study area. Wildlife managers and biologists in Districts 4 and 5 were able to capture an incredible 49 black bears in 10 days and place 21 GPS collars on female bears. The collars are designed with a VHF radio beacon (the method typically used to track bears), a GPS unit to record locations, and a drop-off device. The GPS unit is set to record one location every 19 hours from January 1 through April 30, and one location every four hours from May 1 through December 31. A built-in computer system records the locations along with air temperature, activity patterns and other important data. The drop-off unit, counting on an internal clock, is designed to break apart in 100 weeks if the collar is not removed by managers, thus ensuring that the data will be collected if the managers were

unable to change the collar in their winter den. Wildlife Resources Section personnel hope that the data from these collars will help supply information on home ranges, habitat selection and activity patterns of female bears. In addition, the project was designed to evaluate movements of bears in hunted versus non-hunted areas.

DNR personnel also have cooperated with West Virginia University faculty and students to evaluate the effectiveness of



DNR GIS Image

Using GPS technology, biologists easily track movements of two bears.

aversive conditioning on bears. Aversive conditioning is defined as harassing a bear captured in nuisance situations to deter them from repeating the same behavior, and then releasing the bear at the same location. Wildlife managers captured 12 bears, put radio collars on them, and released them using aversive conditioning. All 12 bears, however, repeated their nuisance behavior in a short period of time. Similar research in other states has also demonstrated that once a bear is habituated to human food sources it is nearly impossible to stop their nuisance behavior.

Wildlife Resources Section personnel continue to analyze long-term data sets to better understand West Virginia black bears. Biologists have published these results as scientific articles that explained the relationship between food conditions and non-hunting deaths, and between food conditions and hunter harvested bears. These results have received numerous positive comments from the scientific community who are using these long-term data sets to help better manage their state's wildlife resources.

Ultimately the future of the black bear lies both in the hands of the DNR and you, the state's citizens. By taking down and storing bird feeders from April 1 through January 1, by not placing trash outside, and by not leaving pet food out at night you will help protect the black bear for generations to come. While the DNR can conduct sound wildlife research and make recommendations, we need your help to make sure our state animal remains wild and in our West Virginia hills and mountains where it belongs.

Chris Ryan is a wildlife biologist stationed in Charleston.



Steve Rutsch

Biologists have discovered a correlation between front paw width and weight.