

# A matter of mast proportions

## Survey indicates wildlife will find more in higher elevations

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BLAINE, Tenn. — On a recent morning, Jeff Webb, a Grainger County wildlife officer, parked his truck at the foot of Clinch Mountain and scanned the leafy canopy for acorns and nuts.

The woods contained all manner of oak and hickory trees, but the only hard mast Webb spotted through his binoculars was a cluster of walnuts.

With Webb was David Brandenburg, a biologist for the Tennessee Wildlife Resources Agency. At each stop along the survey route, Webb counted the hard mast while Brandenburg recorded the results.

Halfway through their rounds, after having looked at 40 trees, Brandenburg's inventory was almost entirely empty — no acorns on the red and white oaks, and no nuts on the beech and hickory trees.

“Historically, mast shortages happen from time to time,” Brandenburg said. “What we’re seeing may be a result of the late freeze and lack of rain.”

The preliminary results from this year's hard mast surveys indicates acorns are in short supply at the lower elevations of East Tennessee, where the oak flowers were nipped by the Easter freeze.

But Brandenburg said mast production appears to be better in the mountains, where the oaks didn't bloom until after the cold hit.

"In Carter County, chestnut oaks were good, and most of the other oak species were fair," Brandenburg said. "But this was at a 3,800-foot elevation. Down in the valley and ridge region, we may be looking at a very different picture."

### **Deer roaming, but bears 'must be finding food'**

Because hard mast is such a critical wildlife food, biologists look to the annual surveys as early indicators of how species like white-tailed deer and black bear will behave over the fall and winter, and even how high their reproduction will be.

Brandenburg said that wild turkey and deer react to mast shortages by switching to alternative food sources. Webb said that as a wildlife officer, his biggest concern is that the shortage will cause deer to roam more, and make them more susceptible to illegal hunting.

"I'm worried about poaching," Webb said.

Brandenburg said black bears must be finding mast somewhere, because there has not been a spike in nuisance bear behavior in East Tennessee in recent weeks.

Wildlife managers in Great Smoky Mountains National Park say their mast surveys indicate a good crop of chestnut oak acorns in the mountains this year, and a fair amount of white oaks.

Bill Stiver, a wildlife biologist for the Smokies, said trees in the red oak family appear to have produced scarce amount of mast this season.

"This is the time of year when our nuisance bear problems normally dwindle down," Stiver said. "We see that happening on schedule, so our bears must be finding food."

### **Bear population tied to 1992, '97 mast failures**

Current estimates put the Smokies' black bear population at about 1,500 animals.

Area biologists point to 1992 and 1997 as the worst mast failures in recent memory. The 1992 failure left pregnant bears in the park so malnourished, virtually none of the cubs born that winter survived. In 1993, researchers documented zero reproduction of black bears in the park, something not seen in 40 years of recordkeeping.

The wholesale reproductive crash put the park's adult female bears on a synchronized reproductive cycle that resulted in a huge number of cubs born in the winter of 1994.

By the summer of 1997, these bears were 3½ years old, the age when black bears strike out to establish home ranges of their own.

Frank van Manen, research ecologist with the U.S. Geological Survey's Southern Appalachian Field Branch, said it was difficult to hike in the Smokies that summer without running into a bear.

"The rate of observations was very high, and so were the nuisance issues," van Manen said. "We trapped more than 130 bears that summer, by far our highest on record."

So it was that the mast failure of 1997 happened to coincide with a boom in the park's black bear population, which in turn could be traced back to the mast failure of 1992.

Black bears were killed in record number that year as they searched for food. The bear harvest for East Tennessee in 1997 was 371 animals, more than three times the average.

Black bears start fattening up on oaks and other hard mast in earnest around mid-October, Van Manen said.

"One of the most fascinating things about the dynamics of black bear populations in the Southern Appalachians is their dependency on food, which varies over time," van Manen said. "Acorns have had to replace the American chestnut, which was the dominant species, and a more reliable and prolific source of food."

Biologists say the No. 1 consumers of hard mast aren't wild boar, black bear, turkey or deer, but small mammals like mice, chipmunks and squirrels that are able to quickly rebound from mast failures thanks to their high reproductive rates.

### **Out in the field: Little mast makes for a quick survey**

TWRA's late summer hard mast surveys in East Tennessee include four counties and two wildlife management areas.

By the time Webb and Brandenburg wrapped up their survey of Grainger County, it was only 11 a.m. They looked at oak, hickory, beech and walnut trees at elevations ranging from 1,078 to 1,472 feet. The survey didn't take long simply because there wasn't much to see.

There were 10 stops in all, the last of which featured half a dozen shagbark hickory trees growing beside the road. While the hickories were devoid of nuts, a scarlet oak tree next to them had plenty of acorns.

It was the first hard mast Webb and Brandenburg has seen since 8 a.m.

“This is the quickest mast survey I’ve ever done in Grainger County,” Webb said.

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