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## Bear-human conflicts rise across Virginia as population grows

Tonia Moxley

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A tranquilized black bear is weighed at Virginia Tech's Bear Research Center, where hibernating bears are studied. MATT GENTRY | The Roanoke Times

Tonia Moxley

**C**orrection (March 3, 2013: 10:39 a.m.): A Virginia Tech researcher in this story is Joel Shuman. An earlier version of this story contained a misspelling. The story has been updated.

BLACKSBURG — Virginia Tech doctoral student Bernardo Mesa clicked on the LED lights sewn into his neon green winter hat and bent over the hibernating bear, a thin wall of steel between them.

Roused from his winter sleep by the prick of a tranquilizer dart, the bear, dubbed “Mickey,” growled twice and looked around. Mesa watched intently through a metal grate welded onto the bear’s artificial den. A half an hour later, Mesa tapped loudly with a stick on the floor of the enclosure at Tech’s Bear Research Center, then nudged the bear to ensure it was deeply asleep.

Mesa and another student slid the small male gently out of its straw-filled nest. Nearly a dozen graduate and undergraduate students swarmed around the sleeping animal and over the next hour monitored its breathing and heart rate, took its weight, measured its growth, drew blood samples, and assessed its fat stores by ultrasound. Another bear, nicknamed “Koda,” went through the process, too.

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The bears are part of ongoing research at Tech mostly funded by the Virginia Department of Game and Inland Fisheries. The center, which opened in the late 1980s under retired wildlife professor Mike Vaughan and now overseen by wildlife professor Marcella Kelly, is the only such facility in the state. Game officials trap bears in the fall as they forage to build up fat for winter hibernation and bring them to the center for study.

Besides the scientific research done with the hibernating bears, “one of the major benefits for us ... is when we have orphans that show up in the spring, we can put the cubs in with the lactating females and they will nurse them and raise them,” said Jaime Sajecki, DGIF bear project leader.

Cubs orphaned when their mothers are hit by cars or killed by hunters are brought to the center because it is much better for them to be raised by wild bears than by humans, Sajecki said. Lactating mothers have shown a surprising willingness to adopt cubs placed near their dens, both in captivity and even in the wild, according to Sajecki.

“Their maternal instincts are just amazing,” she said. “They are wonderful mothers.”

DGIF gives the center between \$30,000 and \$50,000 a year to cover food and other basic operations, Sajecki said. Kelly said she and Mesa are working to attract grant funding and private donations to fund additional research that could have implications for treatment of human maladies.

This past fall no pregnant females were trapped, so for the first time the center took all male bears, and Mesa is gathering data from them to compare with the females. Sajecki said the inordinately plentiful acorn crop in Virginia last year may have kept most adult females in the woods and out of the traps.

With more than 20 years of bear blood samples in the freezer and reams of data from research projects, the center is a cache of scientific information about Virginia’s largest mammal, which by the turn of the 20th century had nearly been hunted to extinction.

### **‘Virginia is bear country’**

Bear recovery began with the 1900 passage of the federal Lacey Act that banned interstate trade of wildlife, said Betsy Stinson, district wildlife biologist at the Blacksburg DGIF office. It took a long time for bear numbers to grow, but today,

Virginia is home to an estimated 17,000 black bears, and they are found in nearly every county in the commonwealth. According to DGIF's bear awareness slogan, no matter where in Virginia you are, you're in bear country.

"The return of the black bear is one of the great conservation/restoration stories," according to Bill Cochran, who has for decades covered wildlife and outdoor sports for The Roanoke Times. "When I was young, seeing a black bear was so rare you'd call the newspaper to report it. Now we have black bears in our backyard feasting at our bird feeder."

That bears can thrive in a fast-urbanizing state has been a surprise.

"I recall quoting people in the '70s who said the black bear in the Mid-Atlantic was doomed, because of the decline in the large, wilderness-like habitat necessary for its survival," Cochran wrote in an email. "Turns out, bears are much more adaptable than anyone envisioned."

Black bears are remarkably free of diseases and they have no natural predators, said Jim Parkhurst, Tech's wildlife extension specialist.

According to the game department, they can live about 25 years in the wild, and females produce from one to four cubs every other year. Their population gains are slow, but steady. The adaptability of black bears is their best ally, however. They, like humans, are omnivorous, and their intellect makes them creative foragers. Bears can live successfully near suburban environments, Parkhurst said.

That translates to sometimes acrimonious interactions. Between September 2013 and the same month of 2014, the nearly 2-year-old Virginia Wildlife Hotline logged 8,485 calls. Of those, 1,437 or about 17 percent "specifically related to situations that involved black bear," according to Parkhurst.

"The next closest species was the white-tailed deer, with 1,214 calls," Parkhurst wrote in an email.

The bulk of bear-related calls “emanated from Albemarle, Roanoke, Buchanan and Wise counties and, in very general terms, from counties in the western mountains that form the core range of the species,” Parkhurst wrote.

Bear harvests are up in the state as well, according to game department figures. A total of 2,312 bears were harvested in Virginia during the 2013-14, up 8 percent over the previous year. The highest recorded bear harvest — 2,325 bears — occurred during the 2009-10 season, according to DGIF.

Hunting data is a big component of population estimates, and it is the primary tool used to control numbers, Sajecki said.

The state’s bear management plan, which calls for maintaining populations at current levels in the western part of the state, was assembled with wide public and stakeholder input. Its goals for conservation are in line with the public’s wishes, Sajecki said.

A 2010 public opinion survey used in formulating the plan showed overwhelming support for the species. A majority of those surveyed — 81 percent — said it was important to have black bears in Virginia, and 85 percent said they believed bears were important to the state’s ecosystem. Sixty-one percent reported wanting bear populations maintained at current levels, with 22 percent saying they wanted an increase, according to the survey. Nine percent said they wanted fewer bears.

But as populations of both people and bears grow and push into new areas, conflicts are becoming more common, making public education about bears more important.

Stinson, the New River Valley district wildlife biologist, said residents have a love-hate relationship with bears. People love the idea of majestic wild bears in the forest, where they “help with nutrient cycling through their behavior of turning and tearing up downed logs to get at insect larvae” and “they assist with seed dispersal as many seeds pass undigested through their gut.”

But the honeymoon ends when the animals raid a homeowner's bird feeder or scatter a neighborhood's trash cans across lawns, she said.

Bears getting into neighborhood trash is the most common problem with the animals in the New River Valley, Stinson said. So DGIF has been working with communities and residents on ways to deter bears, including distributing instructions and a video tutorial on how to bear-proof garbage cans.

Parkhurst teaches a human-wildlife interactions course at Tech, and he said most bear conflicts can be prevented and managed by landowners. In years where natural food is scarce, bears do cause crop and occasional livestock damage, Parkhurst said.

In cases where bears cannot be deterred from damage, the department issues kill permits. Since 2004, kills have gone up, with a high of 156 bears put down in 2011. From 2001 through 2011, kill permit requests cited damage to corn as the most common problem, according to DGIF figures. Forty-five percent of the requests were from farmers, 13 percent from fruit growers, 10 percent from livestock operations and 9 percent because of damage to apiaries, according to DGIF.

## **The bears and the bees**

Virginia Tech researchers Holly Scoggins and Joel Shuman arrived home from Thanksgiving break in 2013 ready to reacquaint themselves with their 3 acres of U-pick blueberry bushes and the seven hives of honeybees they kept for pleasure and pollination in Giles County. They call their home and business Bee Berry Farm.

A cluster of three beehives was enclosed by an electric fence, powered by a deep cycle marine battery. Another four colonies sat out in the open, Scoggins said.

Expecting to see their bees working happily to prepare for winter, the couple instead found a scene of destruction. Where once their neat, brightly colored hives stood, six of the colonies lay broken and scattered, combs and woodenware strewn across nearly

an acre, she said. One hive that had a very heavy weight on top was spared. Among the debris they found one comb mostly intact. The deep claw marks swiped across it implicated the likely attacker: the North American black bear.

Scoggins estimated the loss at about \$600 in bees and about \$1,800 in equipment. There's no telling the value of the lost honey. But the damage was not covered under the couple's farm insurance policy, Scoggins said.

They had never seen a bear on the property, nor had they noticed any damage to their berry crop.

"So we didn't think a lot of it," Scoggins said.

Since buying the farm in 2007, Scoggins said she and Shuman had never been away for so long, nor had the dogs, Bebe the basenji and Bunny the whippet been absent. Scoggins said she suspects that when the regular canine patrols stopped, bears were more tempted to cross Sinking Creek in search of honey and bee larvae to fatten up for the winter.

They later realized that the battery on the electric fence had died. Today, Scoggins said the dogs are back on duty, and the farm's five hives are enclosed by a stout, four-strand electric fence powered by a battery and a solar charger.

Honeybee hives, like unsecured garbage, draw bears, which can smell food sources from a mile or more away. Damage is particularly likely during periods when natural food is scarce — during an acorn failure or during the spring and fall seasons that bookend the bears' hibernation period. But well-designed electric fences can be very effective bear deterrents, Parkhurst said.

The key is understanding that bears are constantly foraging during their active seasons. Any unsecured food sources around homes, businesses or farms are likely targets. But some who experience damage blame the bears, which can be frustrating for wildlife managers.

A bear that finds food near a house in the fall will be back in the spring, “that’s a guarantee,” Parkhurst said. “They don’t forget. They keep checking.”

Bears are considered by biologists to be close in intelligence to primates. Those that become habituated to finding food near humans can be destructive, and in extreme cases, dangerous. Securing or eliminating those food sources can stop problems, Parkhurst said.

But “some people are unwilling to change their behavior,” Parkhurst said. “It puts wildlife in a bad position.”

The game department helps landowners manage bear problems with education. If it escalates, landowners can get permission to use aggressive techniques, like rubber bullets to deter a bear. If that doesn’t work, a kill permit can be issued, Parkhurst said.

But if the landowner refuses to remove food sources and the bear returns again and again, Parkhurst said the landowner can be cited under state law for illegally feeding bears.

### **Blood, bones and bears**

Some habituated, or nuisance, bears have over the years wound up at Tech’s bear research center, where retired bear researcher Mike Vaughan studied pregnant female bears during their hibernation period. The center closed in 2009 when Vaughan left the university, but Marcella Kelly reopened it in 2012 at request of the game department.

Students oversee the center’s daily operations, and some live on site to help care for the bears. The center is approved to hold five bears at a time during the winter hibernation period, and the students are certified to work with wildlife.



Mesa — a doctor of veterinary medicine from Colombia who has studied South American big cats — said he finds black bears fascinating for some of their natural adaptations, and the mysteries scientists haven't yet unraveled.

Female bears mate in the summer, but don't become pregnant until sometime in November. They give birth while in hibernation and nurse while asleep and normally do not eat, drink or leave the den for elimination — for months on end.

“How in this world do you not eat or drink, and develop a whole pregnancy, lactate and then you wake up and you are fine?” Mesa said. “It's incredible.”

Even more fascinating is their ability to maintain bone and muscle mass while inactive for months. Both males and females show this adaptation, which if better understood might have implications for human health, Mesa said.

If inactive that long, humans would lose a crippling percentage of bone and muscle mass, he said. Understanding how bears adapt to inactivity could help astronauts who live in weightlessness, hospital patients confined to beds and sufferers of osteoporosis, a bone disorder that afflicts a large number of women over 50.

Mesa said he's also interested in compiling a wide swath of the center's data to determine if bear hibernation periods are growing shorter over time. If bears grow more active in the winter months, that could increase interactions with humans. Mesa should know next year what facet of research he'll focus on for his dissertation. There's a lot to choose from, he said.

This fall, the center started with five male bears, which were caught by DGIF. One died of an unexpected ruptured hernia, a malady researchers had never seen in bears, Kelly said. Another bear escaped. A third, nicknamed “Thor,” would not hibernate and was released in December, she said. Mickey and Koda will remain at the center until sometime around Easter.

Attracted by experience working with wildlife and Blacksburg's Carol Lee doughnuts, graduate and undergraduate students from natural resources and environment, agriculture and veterinary medicine volunteer every two weeks or so to help examine the bears. And periodically, another team takes muscle and bone samples, Mesa said.

"I love bears," said Esra Gokturk, a junior studying wildlife conservation. "Although I'm moving more towards marine fisheries, I still like coming here to do the bears."

"Esra, would you check those syringes?" Mesa said.

Gokturk turned to the medical supplies and tested a handful of neon pink-tipped tranquilizer darts. She said she started working at the center in the summers, doing paperwork for Kelly. Now she's worked her way up to helping collect blood samples. She's "safe capture certified," meaning she has been trained in humane and safe handling of research animals.

"I just think its really cool that Virginia Tech gives students hands-on experience with wildlife," Gokturk said.

In addition to scientific research, the fostering of orphaned bear cubs and the benefits to students like Gokturk and Mesa, the center may provide another public service: deterrence.

When the center's bears wake from hibernation in the spring, the game department releases them into remote areas. Often, all bystanders can see is a fuzzy, black blur running away, bear project leader Sajecki said. All the poking and prodding seems to re-enforce the bears' natural aversion to humans.

In 2005, a bear researcher told The Roanoke Times that out of 89 nuisance bears studied at the center, only one was known to cause problems again after its release.

## Bio Box

North American Black Bear

Scientific name: *Ursus americanus*

Virginia population: Estimated 16,000-18,000

**Length:** The black bear is one of North America's largest land mammals. In Virginia, black bear is the sole bear species. Adult bears in the state grow to five to six feet long and two to three feet tall (when standing on all four paws).

**Weight:** Males weigh between 175 and 400 pounds, and some may weigh in excess of 500 pounds. Adult females generally weigh between 90 and 200 pounds, and rarely weigh more than 250 pounds. Bear size and weight vary widely depending on time of year and differences in habitat quality. An 880-pound bear harvested in eastern North Carolina during the 1998-1999 hunting season is the largest black bear documented in North America.

**Reproduction:** Females give birth to one to four cubs every other year.

**Food:** Bears are omnivores and opportunistic feeders. Up to 75 percent of their diet consists of plants, but they will eat meat, including insects and road kill. They can hunt live prey animals, but do so rarely. In years where natural foods are scarce, bears can do crop damage and damage property around homes. Garbage, bird and dog food and honey bee hives are major bear attractants. Leaving food items unprotected that could attract bears is illegal, as is intentionally feeding them.

**Hibernation:** Virginia bears hibernate from three to five months, depending on food resources and weather conditions. In eastern Virginia, bears den mostly in the ground beneath brush piles, thickets and other dense vegetation. In western Virginia, bears mostly den in hollow trees. Pregnant females give birth during hibernation and nurse their young without leaving the den to eat, drink or eliminate.

**Other attributes:** Black bears have strong, nonretractable claws on all four paws, which they use for digging, climbing and defense. They are excellent tree climbers, can run up to 30 mph on the ground and are excellent swimmers. Bears see in color and have good hearing and an excellent sense of smell, detecting food sources up to several miles away. Bears can live about 25 years in the wild and longer in captivity. They have no natural predators and are largely resistant to disease.

**SOURCE:** Virginia Department of Game and Inland Fisheries, Virginia Cooperative Extension and North Carolina Wildlife Resources Commission

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## Just The Facts

Black bear misconceptions

**Miconception:** Females are so protective of their cubs that getting in between them is very dangerous.

**Fact:** Typically, a mother bear that feels threatened will send her cubs up a tree and divert attention by running away. The cubs can remain in the tree for more than 24 hours before she retrieves them.

Misconception: A bear cub found alone in a tree is an orphan.

Fact: Mother black bears often put their cubs up trees when they feel threatened and can leave them up to about three days in some cases. The best thing to do upon finding a cub up a tree is to leave it alone.

Misconception: A bear standing on its hind legs is ready to attack.

Fact: When a bear wants to better identify something in its environment, it stands on its hind legs to improve scent detection, hearing and sight.

Misconception: Bears have poor eyesight.

Fact: Bears see in color and have vision similar to humans, although bears may be slightly nearsighted to help them find insects and berries.

Misconception: Shooting or relocating a bear that does property damage is the only solution.

Fact: Removing a bear but leaving food sources in the open will attract new bears. Securing trash, removing bird feeders, putting electric fences around bee hives and feeding dogs and cats indoors are likely to solve most bear problems.

SOURCES: Virginia Department of Game and Inland Fisheries and North American Bear Center

## More Information

Virginia black bear resources

Follow work at Virginia Tech's Bear Center: <https://www.facebook.com/VTBearCenter>  
or <https://twitter.com/VTBearCenter>

State wildlife hotline: Report problems with bears and other wildlife to 855-571-9003.

Virginia Department of Game and Inland Fisheries "Living with black bear"  
video: <http://goo.gl/YAgcV4>

How to make your trash can bear resistant: <http://goo.gl/OfYugU>

Virginia code prohibition on feeding bears: <http://goo.gl/Ur9YEo>

Black bear management plan: <http://goo.gl/iwjKUD>

Black bear hunting information: <http://goo.gl/q0dtPq>

Black bear harvests by county: <http://www.dgif.virginia.gov/wildlife/bear/harvest>

**By Tonia Moxley**

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