



The Bears Among Us

N.C. Wildlife Resources Commission, N.C. State University track black bear movement in and around Asheville as part of a groundbreaking study of urban bears

Written by Jack Horan

Nick Gould was on the move moments after receiving a call from an Asheville homeowner reporting that a black bear had been caught in a culvert trap in his yard one evening last year. Gould, a bear researcher with N.C. State University, jumped in his truck and headed for Beaucatcher Mountain in east Asheville, expecting to find a solitary bear in the 7-foot-long steel trap he had previously set on the property. Instead, Gould discovered five bears in the residential neighborhood.

“Driving up the road, I saw a collared bear and an un-collared bear,” Gould said. He pulled up at the house and peered into the darkness. “One bear in the trap. Two cubs outside the trap. That’s five bears.”

Then Gould heard the clicking of nails and slapping of bear paws on the street and looked in the rearview mirror. “I saw one collared bear

chasing another.” he said. “They kept going down the center of the road.”

Gould’s sightings on Beaucatcher Mountain did not occur in a rural setting next to a state park or on national forest land. Rather, he encountered this group of bears in an urban setting with the lights of downtown Asheville visible in the distance, less than 1 mile away.



The Urban/Suburban Bear Study has provided revealing details about the lives of black bears, which live in abundance throughout the Asheville region.

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Black bears are as common as the ubiquitous craft beer breweries in this city of 83,000 residents. “Bears occur all over Asheville,” Gould said. Indeed, it is not unusual for bears to roam through backyards, den on land beside busy interstates and shinny up trees next to decks.

Gould is part of the North Carolina Urban/Suburban Bear Study, a five-year project examining black bear movements, activity and overall population ecology in the Asheville urban and suburban habitat. When completed at the end of 2018, the study will provide science-based recommendations to wildlife managers. “We believe this study will inform bear managers in the Southeast and across the country,” said Chris DePerno, a professor of Fisheries, Wildlife and Conservation biology at N.C. State..

The study, now in its fourth year, is a partnership between N.C. State and the North Carolina Wildlife Resources Commission. Gould, a Ph.D. student at N.C. State and the study’s field project leader, joins co-principal investigators DePerno, and Colleen Olfenbuttel, the black bear and furbearer biologist for the Commission. Other project staff include N.C. State biologist Jennifer Strules and Commission biologists Mike Carraway and Justin McVey. The study is funded with a grant from the Pittman-Robertson Act, a voluntary federal excise tax on the sale of firearms, ammunition and archery equipment. In the past three years, the group has captured, tracked and collected data on 153 different bears and recaptured 76 bears.

The team trap bears strictly on private property, relying on cooperating homeowners to let researchers place traps on their land. After a bear is captured and anesthetized, the team attaches GPS radio collars with Iridium network satellite-signal transmitters that record movements around the clock. The



Biologists involved in the Urban/Suburban Bear Study have set up traps throughout Asheville, including one overlooking the city (above). Below clockwise: The team has collected data on 153 different bears over the past three years by outfitting bears with GPS radio collars, placing identifying tattoos on their upper lip, attaching numbered ear tags, and taking a variety of measurements to track growth.



Below: Commission biologist Colleen Olfenbuttel (back left) and N.C. State biologists Jennifer Strules and Nick Gould prepare to investigate a bear den. Strules climbs a tree in an Asheville resident’s backyard, where a black bear and her cub made a home in a branch. Olfenbuttel watches with a tranquilizer gun.



sophisticated transmitters contain a built-in polygon or “fence” that outlines Asheville city limits. Whenever a bear crosses into the city, the transmitter sends a signal marking its location every 15 minutes. Signals come every hour when a bear is outside city limits. Gould said the system has provided 578,000 location points in three years. After a collar is attached, the bear is released on site, not relocated. The biggest bear captured over the course of the study weighed 572 pounds, too big for a collar.

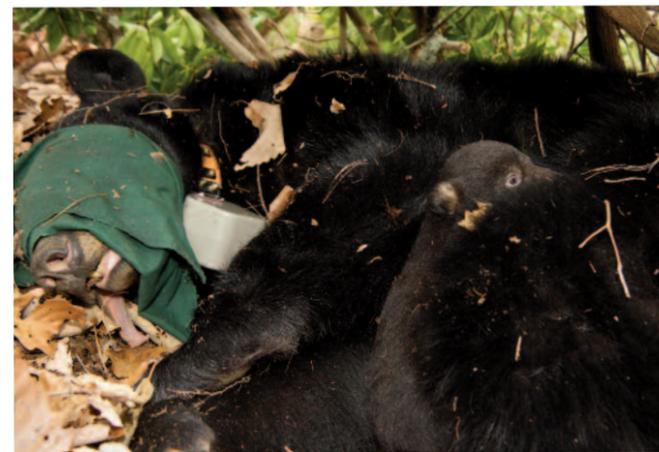
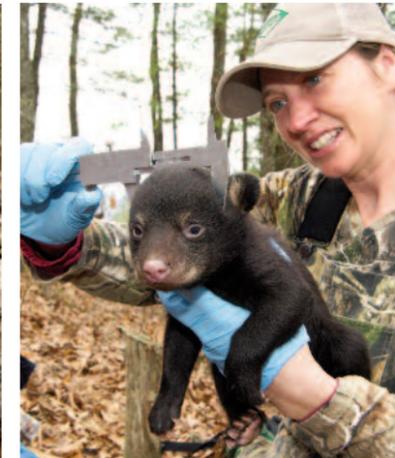
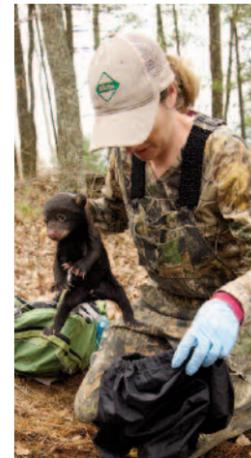
The project has revealed many details about the secret lives of Asheville’s bears. The data has enabled researchers to map out precise home ranges for bears and determine that bears inhabit—or amble through—every part of the city except the downtown area. Some bears spend 90 percent of their time in the city limits; others, virtually none.

For example, data in 2014 showed an egg-shaped home range for Bear N001 in city neighborhoods and rural areas northeast of downtown, spanning roughly 3 ½ square miles. In 2015, Bear N061, a wanderlust male, roamed 80 miles west to Graham County, then returned to Buncombe.

The collars also emit Very High Frequency signals, which can assist researchers in finding dens or to locate dead bears or lost collars. Most common den structures are ground dens, but bears also make homes in trees. Strules recalls a bear that surreptitiously



After shooting the bear with a tranquilizer dart, Strules safely watches as it climbs out of its den before running down a hill. Strules then climbs into the den to retrieve the cub. Due to back-up measures, the team was able to dart the bear again and the mother bear was successfully tranquilized within 100 yards of her den tree (see next page).



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dened in the cavity of a front-yard tree at an Asheville home. An arborist previously had plastered over the cavity, but the bear removed the plaster and wriggled in. The homeowner “had no idea the bear was in there,” Strules said.

Learning to Live Together

Just as Charlotte and Raleigh residents talk about backyard deer, Asheville residents swap stories about neighborhood bears.

Steve Zarnowski owns 8 ½ wooded acres in Carter Cove in north Asheville. A participant in the project, he said the team has captured 16 bears, with four trapped twice, on his land. Last year a family dened near his driveway, he said.

“A year ago, on Easter weekend, we had two of them in my hot tub,” he said. The bears shredded the cover of the tub 10 feet outside Zarnowski’s house. “We actually put the traps out two days later and trapped a family, three young cubs and a mom.”

In the Town Mountain Preserve, just north of Asheville, landowner John Haas said he was impressed with the professionalism of the

researchers and how they treated the bears trapped on his property humanely and with care for their safety. “That was critical to me,” said Haas, who is on the Asheville Humane Society board.

Farther south on Town Mountain, homeowner Cindy Kitchen gets regular visits from an un-collared female bear. “She comes to the bird bath for water,” said Kitchen, a project participant. “She looks at me and slowly wanders away. They’re not hostile or aggressive. We’ve learned to live with them. Everyone learns how to stay back and enjoy. They will come up on the porch and look in the windows. They pretty much ignore humans.” Several of the neighborhoods in Asheville have learned to co-exist with bears by following simple-but-effective solutions, such as not approaching or feeding bears.

Carraway said biologists did not realize how accepting Asheville residents are of bears. “The bears are tolerant of people,” he said, “as well as people are tolerant of bears.”

Gould said the project relies on support from homeowners. The team uses captures to educate residents about living responsibly

with bears. Often, when word about a bear that has been trapped spreads, curious neighbors and kids come by to check it out. “They let you watch the entire thing,” Haas said. The biologists weigh the animal and obtain samples of hair, blood and tissue. To identify the bear, they attach ear tags, tattoo a number on its lip and insert a microchip under the skin.

Once a bear is sedated, Gould said, homeowners are allowed a controlled yet intimate experience with it. They may feel the fur and pads on the feet, ask questions related to bears and learn more about how to prevent human-bear encounters — don’t take garbage outside, clean up fruit fallen from a tree, keep barbecue grills clean.

Bear City USA

Why does Asheville have so many bears? Olfenbuttel said that we don’t yet know if Asheville has more bears than surrounding areas or if there are a lot of people living in good bear habitat, making them much more likely to see bears. In addition, because hunting is prohibited in Asheville, bears may be

less wary of people, making them more visible to citizens. The study will help determine if Asheville lies along a dispersal corridor for bears, as well as if the city serves as a source or sink population for bears. Lastly, bears may be dispersing into Asheville from other source areas, such as the 18,000-acre Asheville watershed, where hunting isn’t allowed.

What Olfenbuttel does know is that bear populations have recovered in the Mountains region from historic lows. In the 1970s, statewide bear numbers had dropped to fewer than an estimated 1,000. In response, the Commission initiated research projects, surveys, and the bear hunter cooperator program. It also approved more restrictive regulations, and created a system of 28 designated bear sanctuaries across the state. These sanctuaries served to protect a breeding population of female bears that reproduced and their offspring would repopulate the surrounding area. The sanctuaries played a large role in helping the bear populations bounce back to its current statewide total of 15,000 to 20,000.

Asheville-Buncombe was selected because of the concentration of phone calls the agency

received about human-bear interactions. For example, in 2012, 40 percent of all bear-related calls came from Buncombe County. Calls range from someone seeing a bear to complaints about bears breaking into bird feeders, garbage cans or an unoccupied cabin. Most phone calls are resolved through education, and Olfenbuttel said bear-caused injuries are rare. They occur roughly every other year, often when hunters try to separate their dogs from a cornered bear or when people try to rescue their pets from a bear-dog scrap. Unprovoked attacks on people, however, have not occurred in North Carolina, Olfenbuttel said.

In the Field

In early February, I joined Gould, Strules and Carraway on a check of four culvert traps. We left the field office in Swannanoa and went to the rural home of Tom Noblett, who owns 50 acres that abut the Blue Ridge Parkway. A yellow-and-black “Bear Crossing” sign beside his driveway welcomes visitors.

Near the trap, Gould halted and lowered his voice. He said researchers speak softly,

Above, clockwise: Gould helps lower the cub out of the tree, and Olfenbuttel takes its measurements. Strules and Gould replace the radio collar on the mother bear and take a variety of samples that are used to gain an understanding of its overall health. Cub and mother are reunited in a makeshift den, where the pair would remain for a couple of days before leaving to find a new home.

DATA OFFERS INSIGHT INTO THE LIVES OF ASHEVILLE'S BEARS

In North Carolina, black bear populations occupy 60 percent of the state, and their range continues to expand. Additionally, the human population in North Carolina has increased and growth continues unabated. Humans and black bears are living in close proximity and some areas may have reached or exceeded the social carrying capacity. In several areas, bear population management options appear limited, since hunting is often restricted in residential and urban developments. Additionally, no data exists on whether urban habitats serve as source or sink populations for surrounding areas, if bears in urban/suburban areas are vulnerable to harvest, or if hunting strategies and education can manage bear populations and human-bear interactions in and near residential developments.

In April 2014, we began collecting information on the population ecology of black bears in the urban/suburban area of Asheville. Specifically, we have collected data on survival rates, reproduction, causes of mortalities, movements of bears in urban areas, and location and characteristics of den sites. We have two years remaining on the study, and once completed, we will compare these data between bears in urban areas and in rural areas. Ultimately, the results will assist the N.C. Wildlife Resources Commission in developing science-based management strategies for bear populations.

This study is centered in Asheville, a medium-sized city of 83,000 people located in Buncombe County in the southern Appalachian Mountain range. It is part of the southern Blue Ridge physiographic province of the Southern Appalachian region. We used landowner reports of black bears to target amenable homeowners to trap bears on or near their property. We attempted to obtain a spatially balanced sample of 40 bears (25 females, 15 males) within, or adjacent to, the city of Asheville. Bears were captured in culvert traps and fitted with a GPS radio collar that did not exceed 2 to 3 percent of their body weight.

From 2014 through 2016, we captured 153 bears, and 76 recaptures around Asheville. Although data are still being compiled and analyzed, anecdotal information suggests that urban bears are heavier, healthier and have better fitness than their rural counterparts. We captured five male yearling bears weighing

more than 180 pounds each and five female yearling bears weighing more than 120 pounds each. Typical healthy yearling bears weigh between 45 and 80 pounds. Additionally, black bears typically begin breeding at 3 years old and produce their first litters at 4, indicating that adults are mainly responsible for reproduction in the population. In 2014 and 2015, a combined 67 percent (20 out of 30) of our collared adult females produced 49 cubs. However, we had 78 percent (7 out of 9) of 2-year old females successfully produce 12 cubs of the year. It is not uncommon for 1-year-old female black bears to breed, but it is uncommon for them to become pregnant and produce successful litters.

On average, survival estimates for adults (older than 3 years old) and subadults (1 and 2 year olds) were 84 percent and 66 percent for females, and 45 percent and 67 percent for males, respectively. Survival for dispersing bears (predominantly young males) was 23 percent, suggesting that black bears leaving Asheville are more likely to die than survive. Nearly half of the 49 bear mortalities were caused by collisions with vehicles (22 out of 49); legal harvest (17 out of 49) accounted for the second largest mortality category; and seven mortalities were due to illegal take (bears shot outside of the legal harvest season).

Our preliminary modeling efforts suggest that Asheville may be a source for the surrounding bear population. Although bears experienced fairly high mortality rates, these were offset with relatively high reproduction rates.

The Commission's management objectives focus on sustaining educational outreach opportunities, specifically on living responsibly with bears as well as providing Asheville citizens with information on basic black bear biology and management goals. Lastly, investigating the spatial ecology of bears in urban habitats will allow us to identify important travel corridors used by bears that the Commission may be able to protect. Our research may lead to new hunting opportunities that would reduce the proximity of people to bears.

— Nick Gould and Chris DePerno, N.C. State University, and Colleen Olfenbuttel, N.C. Wildlife Resources Commission

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NATURE'S WAYS



Do Bears in North Carolina Hibernate?

See Nature's Ways, page 43.

turn off cell phones and tread quietly as they approach traps to avoid stressing captured bears. This time, the trap was empty.

"Bears come through here," Noblett told me later. "There are probably a couple of females with cubs within a half mile. The big males, they come and go."

Noblett said the bears are not aggressive. "I've been mowing the yard and they walk through," Noblett said. He shows me photos of two cubs astride a tree next to his deck and another of two bears outside the trap.

Next stop was a light industrial area off I-40. "We're basically surrounded by city," Carraway said. The trap was in a small wooded area. No bear. Gould sprayed a persimmon-scent attractant on tree trunks and Strules poked cake and chocolate eclairs into the trap as bait.

The third trap was on Beaucatcher Mountain above the I-240 cut. This was where Gould spotted five bears in 2016. No bear today, however. "We don't catch a lot of bears on weekends," Gould said, possibly due to homeowner activity, like cutting wood, mowing or gardening.

The final trap was on the west side of the Biltmore Estate. As we roll along I-240 in west Asheville in 65 mph traffic, Gould and Carraway point to wooded tracts wedged beside the interstate, where bears have denned. "Female and three cubs," Gould said, nodding to the right. To the left, female with four cubs.

The 8,000-acre Biltmore property consists of woodlands, livestock pastures, cornfields and vineyards. Biologists have caught a dozen bears here. The trap is vacant. Free pastry for the next bear.

In 2016, the team captured 49 new bears and recaptured 52. The study began the 2017 season with 23 collared bears. Gould said



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biologists have collars on 40 animals at some point during each year. Collars on some younger bears are deliberately designed to fall off in autumn to prevent a collar from becoming too tight because of fall weight gain.

Olfenbuttel said the project meets several objectives of the Commission's 10-year bear

will help determine if suburban/urban areas serve as de facto bear sanctuaries, and if so, what strategies can be implemented to manage bears and human-bear interactions. Study recommendations can guide managers to identify dispersal corridors and potential hunting areas. "By examining the move-

ments and habitat use of bears in an urban/suburban environment, the NCWRC can identify and conserve important travel corridors," Olfenbuttel said. "Conserving corridors and habitat by acquisition or with conservation

"By examining the movements and habitat use of bears in an urban/suburban environment, the NCWRC can identify and conserve important travel corridors."

management plan, including monitoring populations and trends in areas like Asheville, where people and bears live in close proximity. The project will help the Commission identify, develop and implement educational strategies to inform residents of the tools (removal of attractants, bear-resistant trash cans, BearWise neighborhoods) that can be used to reduce bear-human interactions and address human safety concerns.

Statewide, the Commission uses regulated bear hunting to achieve and maintain population objectives, Olfenbuttel said. Study results

easements can prevent bear population fragmentation, reduce vehicle-caused mortality, allow bears to disperse without being in close proximity to people, reduce human-bear conflicts and maintain bear hunting as a management tool." ❖

Jack Horan is retired outdoors editor of The Charlotte Observer and an occasional contributor to Wildlife in North Carolina. For more information on the Asheville Urban/Suburban Black Bear study, visit facebook.com/urbanbearstudy.