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Back on the Bobcat Trail

by James C. Sciascia

As leader of the bobcat research project in New Jersey, I get to speak to most of the people who call the Division of Fish, Game and Wildlife to report a sighting of a bobcat. Many callers start by saying something like, "You're probably not going to believe me but I'm pretty sure I saw a bobcat."

That's because many people are surprised to learn that bobcats still exist in New Jersey. And results of our Endangered and Nongame Species Program's research efforts during the past four years, along with a growing number of sightings by the general public, indicate the population may be growing.

Bobcats were once widespread and common in New Jersey, probably occurring in all counties. European settlement brought hard times for bobcats; they were hunted relentlessly, as were all of our large predators. The greatest blow to the once large population was the massive deforestation that occurred here at the turn of the century. As forests were cleared for lumber, fuel and charcoal, and land was converted to agricultural use, bobcat habitat was fragmented. Populations became isolated and plummeted.

Although scattered reports of bobcats being seen or killed continued throughout the 1950s and 1960s, bobcats were thought to be extinct in New Jersey by the late 1970s. This prompted the division to initiate a restoration project. From 1977 through 1982, 24 bobcats captured in New England were released in northern New Jersey. The public submitted consistent sightings of bobcats and kittens after these releases that suggested some of the released cats were successful in reproducing.

Interestingly, a road-killed male bobcat was recovered in 1982 that was not one of the released cats and was too old to be the offspring of the released cats. This confirmed that at least a remnant

Free at last! Here, one of the bobcats captured in New England is shown as it was being released in Sussex County in 1979.

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population of bobcats still existed in New Jersey at the time of the releases. Surprisingly, the cat was recovered near one of the Passaic Basin wetland complexes, which is well outside of the northwestern and north-central part of the state where the most suitable bobcat habitat is found.

The bobcat was listed as a state endangered species in June 1991. Since that time, regular sightings have been submitted from an increasingly larger area of the state. In an effort to determine the general distribution of bobcats in the northern part of the state, the division's Endangered and Nongame Species Program conducted a scent post survey in 1995. (Scent post stations are 3-foot circles of ground that are cleared of foliage and covered with a smooth, level layer of sand. A cotton swab, soaked in urine from caged cats, is set in the middle of the circle.)

Sightings Increase Statewide

This survey, which recorded the number of times a bobcat came in contact with a scent post on a survey route, was successful in documenting the range expansion of the species in New Jersey. A total of 11 animals were documented on nine of the 26 routes sampled in the northern half of the state.

The survey confirmed the continued existence of bobcats in Sussex, Warren, Morris and Passaic counties and documented the extension of their recent range into Hunterdon County. Since the scent post survey was completed, sightings in Mercer, Somerset and Bergen counties have been recorded, indicating an even further range expansion in North Jersey.

The most exciting sightings during the past several years have come from South Jersey, where the bobcat was thought to have been extirpated long ago. We now have reliable sightings of cats in Burlington, Ocean, Atlantic, Cape May, Cumberland and Salem counties, indicating that remnant populations in these areas may be growing and expanding.

Determining the distribution of bobcats in the state is relatively easy. The difficult part is estimating the population size and determining home range size and habitat requirements. Radio telemetry is the most common method for studying the home range sizes and habitat preferences of large, free ranging animals so, in March 1996, the division set out wire cage live traps to capture bobcats that could be collared, released and tracked. (See **Tracking the Elusive Bobcat** in the Winter 1997 issue of *New Jersey Outdoors*.)

In February 1997, Preston Haney and Brad Holloway from the Wildlife Control Unit captured our first bobcat in a wire cage live trap. During the next two weeks they captured two more cats and recaptured one of those two cats after it had been collared and released. Amazingly, all four captures occurred in the same trap at the same location.

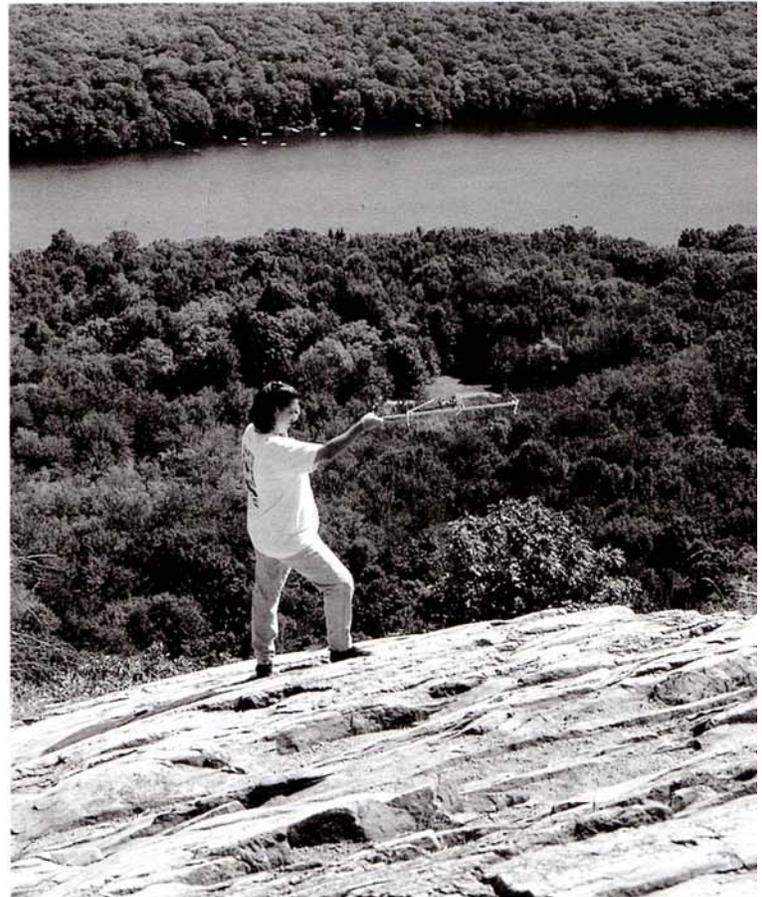
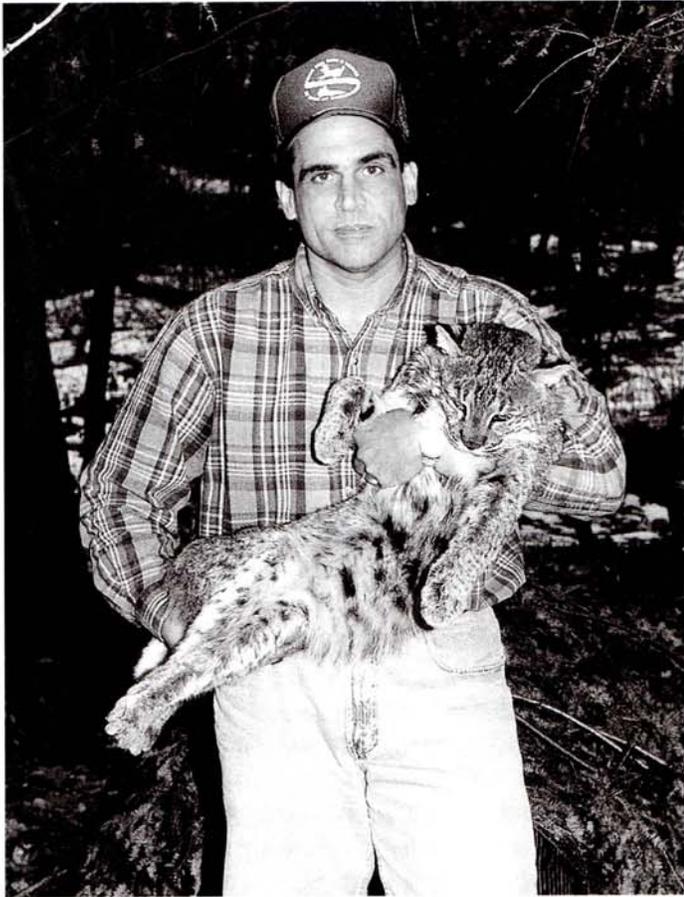
The three bobcats captured were adult males ranging in weight from 25 to 30 pounds. Except for females with kittens, bobcats are usually solitary animals. Although home range overlap is relatively common between females and males, there is usually a smaller degree of overlap between adult males. However, male range overlap is more common during the breeding season when multiple males will seek and compete for a single female.

The fact that these three adult males were captured at the same location over a short period and during the breeding season leads us to suspect they were all drawn to the area by an available female. Radio telemetry later confirmed these three males appeared to have little home range overlap outside of the breeding season.

The radio telemetry data was obtained by placing radio collars on the cats after they were anesthetized, weighed, sexed and measured. This was done at the point of capture and all the cats were released the same day they were caught in Stillwater Township, Sussex County. The radio collars have a 24-month battery life and contain a mortality switch that activates a distinctive radio signal if the animal is motionless for 12 hours.

Unfortunately, two of the cats died during the study period. Fortunately, the mortality switches in the radio collars allowed quick recoveries of the bodies, which enabled the cause of death to be identified for each.

The necropsies performed by division pathologist Doug Roscoe suggest that humans either directly or indirectly caused both deaths. Bobcat #5, named for its radio frequency, was found dead



just two months after its initial capture. The postmortem examination revealed the bobcat died of feline distemper. This is a deadly viral disease that is transmitted to bobcats via exposure to the feces of infected domestic or feral house cats. The virus is very hardy and can persist up to six months in the environment. In addition to the incredible number of small animals and birds killed by free roaming house cats and feral cats, the distemper threat to bobcat populations provides another reason why house cats should not be allowed to run free and proliferate in the wild.

Bobcat #7 was recovered 13 months after its initial capture. In this case, the autopsy revealed the cat died from internal injuries suffered as a result of a severe fall or from being struck by an automobile. The abrasions noticed on the right hind leg were thought to be more typical of an auto strike than an injury from a fall. Radio telemetry data showed this animal frequenting two habitat patches separated by a county road. Based on the telemetry locations, it is likely this animal routinely crossed this road, making it susceptible to an auto strike.

Building a Data Base

Dr. Jane Huffman, at East Stroudsburg University, provided a graduate student and equipment to monitor the cats' movements. Using radio telemetry equipment, Linda Buono tracked the cats for approximately 10 months. The telemetry data she gathered has provided some preliminary information on home range and habitat use.

Bobcat #7 and the other surviving collared cat were monitored long enough to provide enough data to estimate home range size. These male home ranges, of approximately seven square miles, appear significantly smaller than reported home ranges in Massachusetts, Minnesota and Maine where male home ranges averaged between 22 and 32 square miles. Bobcat home range size is affected by the availability of food and cover. The diverse and abundant food supply and the many

The author (above, left) holds the anesthetized bobcat #7, the first of the three captured. The 3-year-old — its age was determined by sectioning a tooth — was recovered 13 months after being radio collared. It apparently had been struck by a vehicle.

Graduate student Linda Buono is shown above locating radio signals from a high point overlooking bobcat habitat.

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rocky ledges and swamps the cats use for cover in the study area allow the cats to find everything they need in a relatively small area.

With data from only two animals from a relatively small study area, no conclusive statements can be made on the home range sizes of the bobcat in New Jersey. Now that we know we can capture cats and have an idea of the pitfalls and limitations of radio tracking, we plan to expand the study to include from four to six additional cats along the Kittatinny Ridge, from the Delaware Water Gap to High Point.

If funding allows, we would like to expand the study to include South Jersey cats that use habitat quite different from that of the northern population. Home range and habitat use may be significantly different between the northern and southern populations. The data from these studies will help us identify habitats critical to bobcat populations and play a valuable role in preserving enough open space to secure the species' future in New Jersey.

This information will be added to a pool of data the Endangered and Nongame Species Program has been collecting over the past three years as part of the Delaware Bay Landscape and Highlands Landscape projects. Information about endangered and threatened wildlife habitat is being combined into a computer database with other natural resource information to define critical ecosystems. Geographic Information System (GIS) technology is being used to produce composite maps delineating critical habitats. In the past, land management and protection has been handled on a site-by-site basis. To an animal, habitat does not end at property lines. Our Landscape projects were created to provide the regional perspective needed to preserve ecosystems that cross many land boundaries, management objectives and human uses.

The information from the Landscape projects will be made available to land planners, zoning boards, environmental commissions, state land managers and regulators. It will also be a valuable asset to developers who will know critical areas before investing time and money in a project. If we can provide a clear picture of rare species habitat requirements, land managers, planners, developers and regulators will have the tools they need to keep important habitats intact. Loss of habitat is the biggest problem facing the bobcat and all endangered and threatened species.

James C. Sciascia is a principal zoologist with the New Jersey Division of Fish, Game and Wildlife's Endangered and Nongame Species Program and has been involved with this bobcat research project since its inception.

Adopt-A-Species

You can help the Endangered and Non-game Species Program learn more about New Jersey's bobcats through Adopt-A-Species. For a \$15 contribution, you'll receive a handsome decal (pictured here), a summary of the bobcat project and periodic updates. Since the program receives no state funding, contributions such as these are needed to

maintain and expand crucial research and protection efforts. If you would like to help, send a check or money order for \$15 to Adopt-A-Species, Endangered and Nongame Species Program, PO Box 400, Trenton, NJ 08625. Other species and groups that can be adopted are shorebirds, ospreys and herptiles (reptiles and amphibians); see page 62.

