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A trail camera captured this image of a cougar traveling through private land in Clark County, Wisconsin, on January 18, 2010. No DNA samples were collected at this site. However, based on other nearby sightings and DNA evidence collected at several locations, biologists agree that the cougar is possibly the same individual that eventually traveled all the way to Connecticut by June 2011.

## Cougar Makes Incredible Journey from South Dakota to CT

Written by Paul Rego, DEEP Wildlife Division

The DEEP Wildlife Division has received numerous reports of cougars for decades. Many of these have been investigated and none could be confirmed by tangible, physical evidence. Identification through tracks or photographs had shown many of these sightings to be cases of mistaken identity, mainly bobcats, coyotes, and even house cats. This same scenario has been experienced by states throughout the East – sightings but no confirmation. Florida is the only eastern state with a cougar population. A small number of cougars have been documented in the eastern states, but many of these were known or suspected to be from captive sources. Earlier this year, the U.S. Fish and Wildlife Service conducted a thorough review of cougar status in the East and determined the Eastern cougar to be extinct.

After many years with no verifications of cougars, the DEEP Wildlife Division received a report of probable evidence of a large cat in Greenwich, including a blurry photograph. Within a week, 35 miles farther east in Milford, the body of a cougar was being examined where it was struck and killed on the Wilbur Cross Parkway. The vehicle-kill was the first confirmation of a cougar in the state in more than 100 years, leading to obvious questions about the animal's origin. A broad and intense investiga-

tion ensued, and, eventually, the story of an amazing behavioral feat emerged.

### *Where Was this Cougar From?*

Prior to detailed examinations of the cougar, it seemed that the most likely explanation for this unexpected occurrence was that the cougar originated from a captive source. The nearest wild established populations are in Florida and the Dakotas, approximately 1,200 and 1,600 miles distant, respectively. And, although young cougars normally disperse from the area in which they are reared, they travel comparatively short distances. In addition, no cougar had been known to travel more than 1,000 miles. In Florida, young male cougars disperse an average of 40 miles and females an average of 12 miles. Research in South Dakota found that males dispersed an average of 160 miles and females an average of 30 miles. The longest documented dispersal was by a young male cougar that traveled 640 miles from South Dakota to Oklahoma.

### *An Extensive Investigation*

The investigation began with a preliminary examination of the dead cougar. It was a young male, estimated to be two to five years old. There was no evidence of a collar and it had not been declawed or neutered. Outward injuries were consistent with it

being killed on the road. Environmental Conservation Police immediately began a search for facilities that may have legally possessed cougars and possible leads for illegal possession. No sources for a released or escaped cougar were found.

Supervisory Veterinary Pathologist Tabitha Viner, DVM DACVP, from the U.S. Fish and Wildlife Service's Forensics Lab performed a detailed necropsy on the cougar, which included full body x-rays. The animal appeared to be healthy, and the stomach was empty. Porcupine quills were found under the skin. This finding suggested that the cat had spent some time in the wild (cougars commonly prey on porcupines), but it did not prove that the animal had always been wild.

Tissue samples were shipped to the U.S. Forest Service Rocky Mountain Research Station Wildlife Genetics Lab in Montana and to the Arizona Cooperative Fish and Wildlife Research Unit at the University of Arizona for genetic testing. Researchers Michael Schwartz and Kristine Pilgrim from the U.S. Forest Service lab discovered two surprising results. First, they compared the Connecticut cougar's DNA to DNA from South American cougars and from subpopulations of cougars in North America. Many captive cougars in the pet trade have South American genetics and a



*1,800 Miles from Black Hills, South Dakota, Breeding Population to Connecticut*

positive match would have suggested captive origin. The surprising result was that the cougar's DNA matched the subpopulation in the Black Hills of South Dakota.

Researchers then took their forensic efforts further by comparing the Connecticut sample to the genetics of a number of cougar "outliers" (individuals found outside of areas known to have a cougar population). Again, a surprising result – the DNA matched a cougar that had roamed Minnesota and Wisconsin 18 months earlier! To quote the report, "*The probability that two individuals with the genetic profile of CT-PC-1 [the Milford cougar] / WI-St. Croix [the St. Croix cougar] match by random chance is  $1.17 \times 10^{-15}$  (i.e., greater than 1 in 854,000,000,000,000).*" Minnesota biologists first documented this cougar near the Twin Cities and collected a scat sample, which provided DNA. Within a month, the cougar was in Wisconsin where biologists snowtracked it and collected scat or hair for DNA analysis at three sites. The cougar was dubbed the St. Croix cougar because it was first documented in St. Croix County, Wisconsin.

### ***New Questions***

How did this cougar travel 1,200 miles from Wisconsin to Connecticut without being detected and why did this individual disperse so far east? Biologists believe that the cougar traveled eastward from its last confirmed location in northern Wisconsin through the Upper Peninsula of Michigan, then through lower Ontario and into southern New England. Two confirmations of cougars in May 2010, one in northeastern Wisconsin and one nearby in the Upper Peninsula, are along this route and may

have been the St. Croix cougar. Detecting the cougar along the route may have been difficult because of the remoteness of the area and the low human population. Further, detection is less likely during the snow-free period – many confirmations of cougars in the Midwest have been through tracks in snow. Finally, the cougar may have been observed but, without tracks, photographs, or other tangible evidence, confirmation would have been difficult.

Subadults of many mammal species exhibit dispersal behavior. Males usually disperse farther than females, and some females stay within their mother's home range. Suggested reasons for dispersal include access to better food resources, reduced competition with other males, and increased mating opportunities. One study of cougars dispersing from the South Dakota population found that those traveling into areas with resident cougars tended to stop their dispersal, while those traveling through areas without cougars dispersed for longer periods of time and farther distances. This seemed to be the case for two other subadult males from the Black Hills that dispersed remarkably long distances. One, fitted with a radio collar in the Black Hills in 2003, traveled southeast through Nebraska and Kansas and into Oklahoma where it was killed by a train in 2004. That 640-mile trek was the longest documented at the time. Another cougar, which had DNA that matched the Black Hills population, traveled east through southern Wisconsin and eventually into the Chicago area where it was dispatched by police in 2008. If it began its journey in the Black Hills, it too would have traveled over 600 miles. It appears that the St. Croix cougar

kept traveling because it did not encounter habitat occupied with other cougars.

Cougar populations have increased in many western states. Although there will be dispersal from these populations, most will be by young males traveling modest distances. Movements by young females will be even shorter, limiting the likelihood for these populations to spread. It is unlikely that New England will soon witness another long distance disperser. The chance that female cougars will disperse this far and begin a reproducing population is much less probable.

### ***Update: Milford Cougar Was Documented in New York***

In December 2010, New York Environmental Conservation Officers investigated a cougar sighting near Lake George. They followed and photographed tracks in the snow that were believed to be from a cougar. They also collected hair samples from a bed site and submitted some to a genetics lab for testing. New York biologists were awaiting species confirmation from the lab when they heard the news of the St. Croix cougar killed in Connecticut. Some of the collected hairs had been retained, so biologists submitted them to the Forest Service lab in Montana for comparison to samples from the St. Croix cougar. The result was a match. This confirmation of the cougar traveling through a fourth state adds another piece to the puzzle of the St. Croix cougar's amazing journey.

**To read more about the travels of the St. Croix cougar through Wisconsin, visit the Wisconsin Department of Natural Resources' Cougar Sightings Web page at <http://dnr.wi.gov/org/land/er/mammals/cougar/sightings.htm>.**