



by Tim Crosby

Room to Roam

**Where the wild things might be, someday:
If cougars continue what seems to be a slow migration back toward
the Midwest, what places are they likely to head?**

Don't try to sell Clay Nielsen on the idea that a breeding population of cougars has taken up residence in Southern Illinois. Despite the occasional reported sighting, the science just doesn't back it up, and science is where Nielsen puts his faith.

But some recent research by Nielsen and former SIUC graduate student Michelle LaRue does show the cougar might continue moving back toward the Midwest, where only about a century ago it thrived in the tall grass of the undisturbed prairie and thick cover of the forest.

Nielsen and LaRue's two-year study looked at potential cougar habitat in nine Midwestern states: Oklahoma, Arkansas, Missouri, Kansas, Nebraska, Iowa, South Dakota, North Dakota, and Minnesota. Since 1990, researchers with the non-profit Cougar Network have confirmed more than 150 cougar presences throughout this region, says Nielsen, an associate scientist with SIUC's Cooperative Wildlife Research Laboratory and director of scientific research for the network.

Nielsen and LaRue didn't include Illinois or any other state east of the Mississippi River in their study because cougar confirmations there are almost nonexistent, Nielsen says. Illinois has had only two confirmations—one in 2000 in Randolph County and one in 2004 in Mercer County—and he was involved in investigating both.

"Sightings don't count," explains Nielsen, who previously did a study (reported three years ago in *Perspectives*) that looked at cougar confirmations in the Midwest. What's required for scientific research is "real proof, like a cougar carcass, DNA, or a photo where you can make a positive identification."

Nielsen and LaRue's study reveals that several large areas in the Midwest offer ideal habitat for the tan, carnivorous cats, which typically weigh in between 100 and 150 pounds and can grow as large as 200 pounds. It turns out that Arkansas, Missouri, and Minnesota have substantial areas that could attract and support cougars. About 19 percent of Arkansas, for instance, is highly suitable, as well as 16 percent of Missouri and 11 percent of Minnesota.

The Shared Earth Foundation, along with the Summerlee Foundation and the wildlife laboratory, funded the research, which Nielsen and LaRue published earlier this year in the science journal *Ecological Modelling*.

"One of the first questions we have about cougars in the Midwest is where is the potential habitat," Nielsen says. "Cougars, like bobcats and wolves, are very adaptable, and juvenile males are capable of dispersing from western populations to the Midwest."

LaRue and Nielsen conducted the study in a somewhat unusual way for a wildlife research project. Instead of heading out into the wilderness, they asked cougar experts to rank how important various criteria are in making good cougar habitat. Then they used computers to overlay satellite imagery and databases cataloging those factors: land cover, road density, human population density, distance to water, and topography. By combining this existing geographic information with the experts' rankings, they identified areas with the most potential habitat in units of 90 square meters.

"Ideally, if there were lots of cougars around, we'd put radio collars on them, determine their locations on the landscape, and the cougars themselves would be informing us about critical habitat," Nielsen says. "However, there aren't many cougars present in the Midwest. So when the animals can't inform us as to what's important, the experts will.

"We also overlaid the model with cougar confirmation locations—where their presence was determined by carcass or photographic evidence—to see if our model made sense, and it did. We observed that cougar confirmations existed in areas of good habitat as predicted by our model. Most cougar confirmations occurred in forested areas with low human influence and rugged topography." Cougars, he explains, "like secretive areas and require some cover year-round."

While the study points to the potential for cougars to live in certain regions of the Midwest, Nielsen says it's important to note that the existence of ideal habitat does not mean those areas are currently playing host to breeding cougar populations.

"This is a first look only," he says. "This is the first large-scale model of potential habitat for cougars in the Midwest. It is not current cougar distribution in the region."

Overall, Nielsen says, about 8 percent of the Midwest offers highly favorable habitat for cougars, which generally means dense forest cover and rugged terrain. Areas with high human influence, row-crop agriculture, and lots of roads are inhospitable.



Clay Nielsen, a scientist with SIUC's Cooperative Wildlife Research Laboratory, holds the skull of a cougar killed by a hunter in 2004 in Mercer County, Ill.

The study identified six large, contiguous areas of highly favorable habitat that are equal to or greater than 2,500 square kilometers in size. Those areas include northeastern Minnesota; Mark Twain National Forest in Missouri; Ozark National Forest in Arkansas; and Ouachita National Forest in Arkansas and Oklahoma. They also include the Badlands in North Dakota, and the Black Hills of South Dakota, where there are already known breeding populations of cougars.

The study also identified much smaller areas of highly suitable land scattered throughout the nine-state region. Such oases, Nielsen says, might act as "stepping stones" for animals dispersing from west to east. These areas tend to run along major rivers, and Nielsen says it is well known that cougars use river corridors to travel.

Although parts of Southern Illinois have some characteristics favorable to cougars, Nielsen says there are also important differences. The Shawnee National Forest, while large by some standards, may not be large enough to support a cougar population. "Compared to the

Ozarks or the Black Hills, the Shawnee is a drop in the bucket—considerably smaller and not nearly as contiguous," he says. "It is pretty wild, but not nearly [as much] as some of the places we assessed in our habitat model."

The Shawnee, he adds, also is a long way from the next nearest population of cougars, in west Texas. And despite some confirmed sightings there, there's no guarantee a breeding population of cougars will even make it as far as the Ozarks.

Nielsen hopes the study will enable other researchers to further study cougar distribution and dispersal trends.

"Someday we may have cougars in these potential habitats, but it's going to take a lot of movement west to east for that to happen," he says. "Most dispersers are juvenile males, and it will require more females to travel into the Midwest for any breeding populations to eventually occur."

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