

Eastern Cougar Foundation
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Eastern Cougar Foundation



Bringing Back a Legend

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A cougar captured by a remote camera on a trail in Cypress Hills Interprovincial Park on the Alberta-Saskatchewan border, home of Canada's easternmost breeding population. More on Page 10. Thanks to Michelle Bacon of the University of Alberta in Edmonton for sharing the photograph.

DISPERSAL

Can Cougars Recolonize the Midwest and the East on Their Own?

By Helen McGinnis with much help from Dave Maehr and John Laundré

The dramatic and sad story of the young male cougar which may have been born in the Black Hills, dispersed East and ended up dead on the streets of Chicago (see Pages 7-8) calls attention to the importance of dispersal in potential cougar recolonization of the East and Midwest and the difficulties that the big cats are encountering. All successful species disperse to find new sources of nourishment and shelter and to avoid inbreeding. Plants must disperse passively, by wind, water or transported by animals. Animals, depending on their ability, move actively to find new homes. Cougars are not different.

Young cougars, both males and females, become independent from their mothers at an average age of 15 months. Lack of maternal attention seems to trigger independence. After leaving their mothers, siblings may travel together for a month or two. Then, at an average age of 14 months for females and 16 months for males, almost all males and some females disperse. At this point in their lives, these subadults have not yet reached breeding age (Logan and Sweanor 2001).

In their summary of cougar ecology and behavior, Laundré and Hernandez (2003) reported dispersal distances ranging from 30 to 120 miles for males. However, recently dispersals of over 200 miles have been reported. Young males tend to head in a general compass direction but can be turned aside by obstacles such as wide expanses of unsuitable habitat or human development. Consciously or not, they are looking for a territory of their own--one with adequate prey, cover for resting and stalking, and potential breeding partners. But even if all these are available in or near their mother's home range, the subadult males leave. They are probably driven out by their fathers or older--and thus bigger-- males dispersing into the area. Laundré and

Hernandez (2003) propose that a young male continues to disperse until he becomes big enough to successfully take over an occupied territory or defend a vacant one he may find.

The opportunity to breed is an underlying reason for dispersing, so a young male is not likely to settle down permanently in a home range without access to a female. Eventually these unsuccessful males become floaters. They are basically treading water, waiting for an opportunity, but not actively dispersing (Maehr et al. 1991).

Many females do not disperse at all and end up giving birth to litters on their mothers' territories. Those that do leave usually disperse much shorter distances--no more than 60 miles (Maehr et al. 2003). It appears that females are mainly looking for good habitat with plentiful prey--enough to successfully rear kittens. Because the majority of females do stay in or near their natal areas, they tend to be related--mothers, daughters, and sisters.

Dispersers from the Black Hills: Cougars in the Black Hills have been studied since 1998, first by Dorothy Fecske and then by Dan Thompson, both of whom were PhD candidates at South Dakota State University. Between 2003 and 2006, Thompson and his team captured 29 subadult cougars--19 males and 10 females--and outfitted them with VHF radio-transmitters. Only 4 of the females stayed in their natal range. All the males left, and no male immigrants from elsewhere were documented (Thompson 2008).

Five subadult males dispersed more than 150 miles. At least two of them traveled record distances before they were killed. Measured in straight lines, one journey ended up with the male dead in Oklahoma (662 miles in a straight line; Thompson and Jenks 2005), another was

last recorded in extreme NW Minnesota (about 450 miles). Last year, another turned up in SE Nebraska (about 375 miles). If the Chicago cougar came from the Black Hills, he had traveled at least 800 miles. Subadult males from Black Hills probably disperse huge distances because they cannot find females.



The Caloosahatchee River.

Dispersal by Florida Panthers: Young males in Florida tend to disperse in wide circles because they are constrained by development and wide expanses of flooded land in the Everglades. Until 1998, the Caloosahatchee River, a dredged artificial waterway with steep-sided banks, was an insurmountable barrier to dispersing males and remains so for females. Since then, a few males have made the crossing. One male went almost as far north as Orlando and then turned around and returned to the vicinity of the Caloosahatchee, where radio contact was lost. Probably he returned because he found no potential breeding partner (Maehr et al. 2002).

Record Dispersal Distance by a Female: On February 9, 2005, David Stoner put a GPS collar on Female 31, estimated to be 1.5 years old, in the Oquirrh Mountains at the southern end of the Great Salt Lake in Utah. She presumably was born there. Three months later, she began a year-long dispersal that took her south to Interstate 70 and then north to the Uinta Mountains, which are one of the few mountain ranges that extend west-east rather than north south. She continued east into south-central Wyoming, and then reversed course, ending up near Meeker in Colorado, where she

was killed by a hunter on February 7, 2006. She had traveled a minimum of 838 miles (223 miles in a straight line; Stoner et al. 2008). Only one other female, in Alberta, is known to have dispersed a similar straight line distance (228 miles): details of her route are not available (Weaver et al. 1996).

The reason for No. 31's atypical dispersal is unknown. Stoner said, "I think that the social context a young animal is born into plays a very important role, but I can't really articulate how. Unfortunately, other than distance and direction and general patterns, we know very little about dispersal" (email to Helen McGinnis, May 21, 2008).

The Need for Corridors: The long but ultimately unsuccessful dispersal of the Chicago cougar points out the need for designated east west dispersal corridors, leading to suitable habitat on the west side of the Mississippi River and on into the "Far East" if cougars are to recolonize these areas on their own. Linkages along the Rocky Mountain chain leading from Canada into Mexico, and down the Appalachians and Green Mountains from Quebec into Alabama are proposed and being assembled, with the Wildlands Project playing a major role. Another dispersal corridor is proposed and being assembled north south in Florida which ultimately may link up with the Appalachians.

I am not aware of any east west corridors existing or proposed. In the Rocky Mountains, cougars such as Female 31 seem to rely on mountain ranges for their movements. However, what happens when the mountains run out? Dave Stoner found that Female 31 turned back when she reached central Wyoming and headed south within the mountains again. Her decision to turn back was undoubtedly related to her need for cover and rugged terrain for stalking and resting. Subadults dispersing across the Great Plains from the Black Hills probably use wooded riparian areas along rivers and streams to move through the flat, non-forested expanses of the

Great Plains. Will it be possible to designate corridors across this large barrier? Perhaps they could be done in conjunction with existing and proposed transcontinental hiker and biker trails, existing public lands, and lands managed by organizations such as The Nature Conservancy?

The Texas Connection: LaRue and Nielsen (2008) recently published a corridor modeling study. Using the localities of various confirmations of male cougars in the Midwest as ending points for dispersals, the best routes from assumed starting points in the Rockies, Black Hills and Texas were backtracked. These theoretical routes ignored the fact that dispersers have no maps to guide them over the best routes, so they don't end up in places like Chicago. In fact, none of the three fully documented dispersals from the Black Hills followed these hypothetical routes. (See the map on Page 8 of the February 2008 ECF newsletter.)

More interesting is their discovery that the best route for cougar recolonization of the Midwest is not the hazardous journey across the Great Plains but from Texas. Two separate studies of potential cougar habitat have determined that the Ouachita National Forest in southwestern Arkansas and the Ozark NF, which extends from northern Arkansas into southern Missouri, have the best potential habitat in the southeastern US and the Midwest (Thatcher et al. 2006; LaRue and Nielsen 2008). However, Texas, the only state that allows cougars to be shot at any time, probably does not produce as many potential dispersers as populations in the Black Hills or the Rockies.

Are Rivers Major Dispersal Barriers?

Cougars can survive in a vast array of habitats, but two kinds of geographic barriers give them trouble. When animal populations are isolated by geographic barriers that cut off almost all dispersal, new subspecies or even species can develop over thousands of years. Wide expanses of desert without stalking cover or prey in southern New Mexico and Arizona

have led to distinct populations, as determined by DNA analysis (McRae et al. 2005).

Culver (2005) believes that major rivers in Latin America--the Lakes region of Nicaragua and the Amazon River, Rio Parana, Rio Negro and Paraguay River in South America--are significant obstacles to dispersal that have resulted in the evolution of subspecies. At least two subadult males have managed to cross the Mississippi River from Iowa and Missouri into Illinois since 2000 (Cougar Network). The Mississippi is actually wider (about 0.9 to 1.0 mile) where it flows along the western border of Illinois than further south, but still the width of the river, busy with boat and barge traffic, might be a daunting obstacle for a dispersing cougar. In addition, cougars are not being welcomed to Arkansas.

Dave Maehr adds: "For cougars, no barrier can be viewed as absolute, as the Chicago cat and others have shown. However, the reason for doing telemetry research is to generalize about populations and reveal underlying patterns that drive their ebb and flow. Anecdotes of individual feats of perilously long dispersals point to the capacity for a population to move and colonize, but, as is seen in most of these cases, the animals do the dispersals by themselves, and they wind up by themselves (frustrated dispersal). There is no doubt that the Caloosahatchee River is a dispersal filter, and a possible barrier for females. The bottom line here is that such natural (and artificial) landscape features shape the way populations grow (or don't). If not for the Caloosahatchee River I am sure that panthers would be breeding and occupying much more of Florida and, possibly, the Southeast." (email to Helen McGinnis, May 25, 2008).

When It Comes to Colonization, Cougars Aren't as Successful as Coyotes: Female coyotes and wolves are as likely to disperse long distances as males. If a dispersing male and female meet up and pair in unoccupied habitat, a new population can arise. Over a period of 60 years, coyotes dispersing from the

Midwest have occupied virtually all suitable habitat in eastern North America (Parker 1995). Male wolves and coyotes help care for the young and thus can have larger litters than a female cougar.

Left to themselves, wolves could probably recolonize the West in a few decades, but many humans hate wolves. Wolves are often seen in the day, make themselves known by howling, and are probably more likely to prey on livestock than cougars or bears. Bears and cougars are likely to sneak around at night when they are near human habitations.

Female bears resemble cougars in that they are solely responsible for rearing their cubs and don't disperse far. Male bears sometimes disperse long distances, but not as far as cougars, coyotes or wolves. Peacock and Peacock (2006) envision a population of grizzlies expanding slowly at its margins as females disperse relatively short distances into habitat that provides adequate food for their young and minimal conflict with humans. Cougar populations may expand in the same way, but there is little habitat and scant welcome from humans on the Great Plains east of the Rockies and Black Hills.

However the recent re-establishment of a breeding population in the Cypress Hills on the border of southern Alberta and Saskatchewan, an island on the Great Plains, demonstrates again that a few females will take the big leap, leading to establishment of new breeding populations.

Summary: Can cougars find and recolonize suitable habitat in central and eastern North America on their own, without help and probably with much resistance from some of us humans? Maybe, but it will take a long time, not within the lifetimes of many of you readers. But our ancestors were responsible for the elimination of many wildlife species in the East. John Laundré says, "It is our responsibility to restore them for future generations and not just the 'desirable ones.' We currently talk about Pleistocene restoration, but should address restoration of more recent extirpations before we try to bring back ones there were here 100,000s of years ago!"

There may be more hope for dispersing Florida panthers. At the 9th Mountain Lion Workshop, Land and Belden (2008) presented a map of Florida that showed patches of panther habitat extending into central Florida. But so far, this habitat is occupied only by occasional wandering males. Maehr et al. (2002) have suggested introducing a few females into suitable habitat in central and northern Florida. This "helping hand" could lead to recolonization of the good potential habitat in the Okefenokee National Wildlife Refuge on the Georgia-Florida state line, and from there, west through the Florida Panhandle and on into southern Alabama and southern Mississippi, or with more difficulty, north into the Appalachians.

References cited in this article have been posted in the newsletter section of the Eastern Cougar Foundation's website, www.easterncougar.org

ECF's Cougar Club for kids. Check out our new online booklet, which you can download and print from our website. Fifteen pages of activities and facts for kids. Written and illustrated by Bev Fronk.





PRESIDENT'S MESSAGE

The 9th Mountain Lion Workshop—New Technologies, Changing Focus

The western Mountain Lion Workshop is convened every few years and was held this May in Idaho. From the symposium's many presentations, prepared by the world's foremost authorities on *Puma concolor*, it is clear there remains much to learn about this magnificent felid. New technologies such as computerized, satellite-linked radio collars, as well as a historic database and ever growing body of knowledge about the cat, help all of us better understand the animal. But the changing face of the continent and its many habitats, its human population, weather patterns, socio-political environment, and undoubtedly a host of as-yet unidentified variables, are influencing the ecology and behavior of the puma. And its management, too.

A growing trend at the last few western Mountain Lion Workshops has been increasing attention on



the subject of pumas in the Midwest and East. The well-publicized Chicago death in April of a lone male puma, traced back to Wisconsin and South Dakota through the netherworld of modern genetic forensics, only heightened this year's interest in the subject. With South Dakota pumas showing up in places as widely separated and distant from the Dakotas as Montana, Nebraska, Oklahoma, and Illinois, one wonders where the next western puma will appear.

Maurice Hornocker, the first modern cougar biologist, delivered the keynote address at the conference.

Or where the next puma population will emerge. South and North Dakota today both acknowledge breeding populations. And given the number of puma confirmations there, including road-killed kittens, Nebraska almost certainly now has a breeding enclave of mountain lions. North of the border, in Alberta and Saskatchewan, the Cypress Hills, a historic hotspot for lone, wandering pumas, now also has its own resident puma population. Slowly, inexorably, the great cat is reclaiming its range.

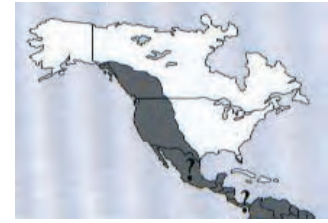
On this note, research at Southern Illinois University is helping to clarify routes that dispersing mountain lions might follow eastward, while biologists back in South Dakota are working harder to tag and closely track their state's big cats as some inevitably saddle up for their own version of Walkabout.

It is also clear that the puma needs advocates like the Eastern Cougar Foundation. In the East and Midwest it seems only a matter of time before pumas make a convincing appearance, either through natural recolonization, officially sanctioned restoration efforts, or both. It will take dedicated advocacy, biopolitical lobbying, and education to see puma recovery through. ECF is there helping to pave the way, and in this election year I hope you will help support us as we proudly stump and campaign for the puma, America's mysterious cat.

--Dr. Jay W. Tischendorf



NEWS FROM THE BLANK SPACE



← Historic range of the cougar.

Range of the cougar ca. 1990→

Maps of the cougar's range produced in the 1990s show a vast blank space in eastern and central North America—habitat that the big cat used to occupy before it was eliminated by persecution and near-elimination of its natural prey—the white-tailed deer. Above are maps from Kevin Hansen's 1992 book Cougar: The American Lion. The Eastern Cougar Foundation is dedicated to the restoration of cougar populations in suitable areas of the eastern portion of that blank space and advocates responsible management when they recolonize former habitat.

(1) CHICAGO AND WISCONSIN—A Sad End to a Long Journey: In the last issue of this

newsletter, we reported the first confirmation of a cougar in Wisconsin in more than 100 years. Several credible sightings were received in Rock and Jefferson counties in the southeastern part of the state in early 2008. On January 18th, a cougar was startled from the haymow of a barn near Milton. It leaped to the ground through a missing slat, cutting its foot and leaving unmistakable cougar tracks and blood spots. The blood was collected and sent to the U.S. Forest Service Rocky Mountain Research Station in Missoula, Montana. Gradually the results were



From Chicago Sun-Times article, April 15, 2008

announced—it was a cougar, its parents were North American with no evidence of South American ancestry (which would indicate it was a former captive or descended from captives), it was a male. “Based on genetically sampled local populations, it is most similar to South Dakota cougars,” said Wisconsin DNR mammal ecologist Adrian Wydeven.

The DNR kept track of reliable sightings and tracks, starting on January 4th north of Milton. It probably used the North Shore Channel, fringed with woods and important habitat for Chicago wildlife, to get from Wilmette to Roscoe Village.

On the afternoon of April 14th, after many reported sightings in the built-up neighborhood of Roscoe Village, the cougar was discovered hiding under a porch. It was gunned down by law enforcement officers. The remains were taken to the Field Museum of Natural History for a necropsy. It was a male weighing about 122 lbs. It was perhaps 2 years old. It appeared to be in good condition, but its stomach was empty. There was no evidence, such as lack of claws, that it had ever been in captivity.

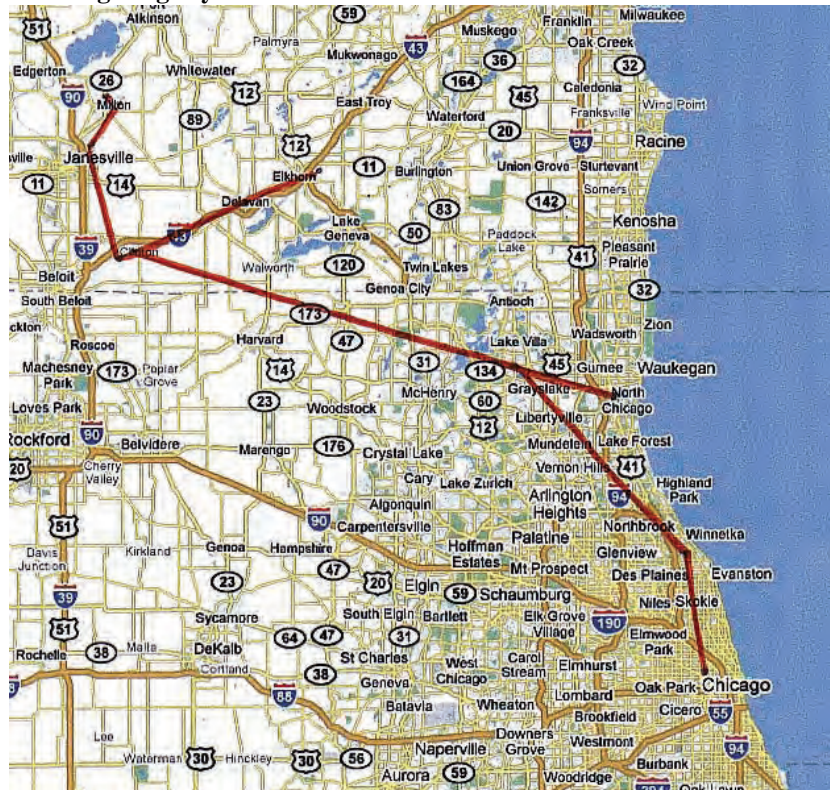
Scientists clamored for access to the remains. The dead cougar's DNA has proved beyond doubt that it was the Wisconsin cat. With more tissue available, the USDA has determined that cougar's genetic traits match many characteristics of animals in the Dakotas, Wyoming and Montana. Scientists now are

zeroing in on additional genetic traits to see if it specifically matches those in western South Dakota. But unless geneticists can find very close relatives, they may be unable to say for certain that it came from the Black Hills, a straight-line journey of more than 800 miles. It's possible that it was born in Nebraska or even Minnesota, which has several recent confirmations. It could even be a former captive; North American cougars are also held in captivity.

Dr. Clay Nielsen has obtained a claw from the dead cat. Recently a team of scientists headed by Larkin Powell at the University of Nebraska determined that a cougar found dead in NE Nebraska in November 2005 had lived in the Black Hills, based on chemicals in its claws. Nielsen plans a similar analysis of the Chicago cat's claws.

Points that the cougar visited between January 4 and April 14 in SE Wisconsin and NE Illinois, based on a compilation of confirming evidence and reliable sightings by the Wisconsin DNR.

The killing of the cougar set off a firestorm of debate on the blog sphere and elsewhere. Jim Stingl, a columnist with the Milwaukee Journal-Sentinel, accused Chicago police of killing Wisconsin's cougar--"cougar-cide.". The mayor of Chicago, who supported the killing in this densely populated urban area, has received many threatening letters. The FBI is investigating the possibility that the destruction of a house on April 24th by arson was in retaliation.



(2) KANSAS—First Undoubted Confirmation in More Than 100 Years. The Department of Parks and Recreation has confirmed that a Barber County resident shot a

male cougar on his property near Medicine Lodge in November. This is in the south-central part of the state near Oklahoma. Tracey Galvin, a law enforcement officer with the Department, received tips from local residents, including a rancher who had seen the dead cat. The remains had been taken to a taxidermist in Texas. According to the *Wichita Eagle*, charges are pending against the individual who killed the cougar.

On its website, the Department says, "No hunting season for mountain lion has been established in Kansas, and they may not be killed for mere presence. Landowners are permitted to destroy wildlife, including mountain lions, found in or near buildings on their premises or when destroying property, but may not possess such animals with intent to use unless authorized."

(3) Northeastern NEBRASKA – May 11th is a day Ron Olson will remember for a long time. He was hiking on a trail he'd made to search for mushrooms in Lazy River Acres, a public recreation area in Knox County along the Missouri River about ten miles from Niobrara. He found the trail had been torn up. Lying across the trail a bit further on was a deer carcass that had been chewed on. He turned around, and there was cougar. It turned and walked off.



Olson went back and got his brother Rich Johnson, a friend, and a remote camera. The deer was no longer on the trail when they returned, but they followed bits of blood and hair and found the carcass about 50 yards away. They set up the camera and left. Returning less than a day later, they found that camera had taken several photos of the mountain lion within 90 minutes after they left.



On its website, the Nebraska Game, Fish and Parks Commission says: “Considering the recent confirmed sightings of mountain lions and the large number of deer in the state, it is likely that additional mountain lions will be encountered in Nebraska. Individual animals and perhaps even a small population exist in the western portions of the state such as the Fort Robinson and Wildcat Hills areas A combination of understanding and tolerance will allow us to coexist with mountain lions and prevent us from repeating the mistake of extirpating this magnificent feline from Nebraska once again.”

Thanks to Rich and Gina Johnson for the remote camera photos.

(4) Southeastern MANITOBA—It Helps to be Prepared. Linda Dyck lives at Plum Coulee. Her husband Abe called her to say that a cougar was on its way from an old farm about a mile away. Then gopher hunters roared into her driveway to tell her they'd just scared it up from some brush. Linda grabbed her camera and was ready when the big cat raced through her backyard. The photo is so good that some of us were concerned it was a PhotoShop job, but Manitoba Conservation biologist Bill Watkins checked it out and accepts it as a bona fide confirmation.

(5) Southeastern SASKATCHEWAN. Saskatchewan Environment officers are investigating the kill of a cougar in the vicinity of Arcola. Harvey Holloway admits he shot it and says it was justified, because it was in a farmer's yard, and the family was terrified. Shawn Burke, manager of Wildlife

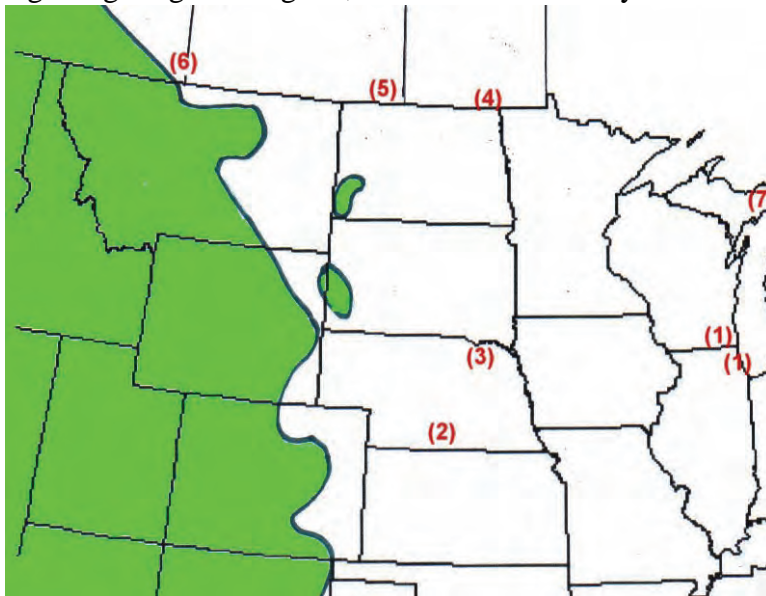
Management and the cougar biologist for Saskatchewan Environment, said that photos of the dead cat had been circulating on the Internet. [Your newsletter editor was unable to find them.]

Burke said cougars are protected under the Wildlife Act in the province. In an article in the Leader-Post, April 4, 2008, he continued, "We have a very small population of between 250 and a maximum of 300 cougars," he said. "No one is supposed to shoot them. However, there are provisions in the Wildlife Act that allow a landowner or his immediate family to deal with a cougar or any predator if it is an imminent danger to themselves or is actively attacking their livestock."

(6) ALBERTA-SASKATCHEWAN—Cypress Hills Cougar Study. In the late 1990s, cougars re-established a breeding population in Cypress Hills Interprovincial Park, an island of good habitat in a sea of prairie. Researchers at the University of Alberta will be using GPS collars to track the movements of the cats. They say, "Evaluating this isolated population will help gain an understanding of factors that contribute to the restoration of a large carnivore, and will provide insight into potential expansions of cougars into more eastern parts of North America." Look for a feature article in September issue of this newsletter.

VIRGINIA—An Unplanned Experiment in Bedford County. Enthusiastic about the possibility of cougars in his home state, Ben Shrader began soliciting reports of sightings from friends and associates in Bedford County, which is in the western part of the state south of the Blue Ridge Mountains. Not realizing sightings had never been recorded in Bedford County; he soon assembled a collection of 31 reports. As word spread and the number of reports mushroomed, he stopped recording sightings. He also compiled sightings recorded by the National Park Service; John Lutz of the Eastern Puma Research Network; Dr. Donald Linzey of Wytheville Community College, another long-time cougar searcher; and the Virginia Dept Game and Inland Fisheries. Together, they added up to a total of **707** alleged sightings in Virginia, none of which have yielded verifiable evidence of existence of a cougar

in Virginia since 1882. Ben now concentrates on investigating only new reports for evidences such as tracks or promising camera sites.



(7) MICHIGAN—Snow Tracks Confirmed on Upper Peninsula. Mike Zuidema, a long-time and controversial cougar searcher, was driving his vehicle on a snow-covered road on property owned by his two sons on March 9th when he came upon an undoubted cougar tracks. The animal had come out of a cedar swamp, walked along the road for about 260

Recent confirmation mentioned in text (red). Approximate range of breeding populations in green, derived mainly from the Cougar Network's "Big Picture" (www.cougarnet.org).

yards, and then went back into the cedar swamp. Tracking conditions were excellent, leaving no doubt of the identity of the animal that left the tracks.

Two DNR wildlife biologists visited the site the next day. They were unable to track or backtrack the cougar because of the depth of the snow and because, off the road, the cat had walked on trails packed down by deer. They concluded that the evidence of a cougar was “possible” or “even probable.”

On the opinion of this writer (HJM), there is one other likely confirmation of a cougar in Michigan in the last 20 years. In February 2005 a motorist hit a cougar in southern Menominee County. DNA analysis of hair on the bumper demonstrated the animal was a cougar. So far, there is no evidence of a breeding population in Michigan.

SOUTH DAKOTA—Changes Proposed for 2008-2009 Cougar Hunting Season. The SD Game, Fish and Parks Commission has proposed major revisions to the state’s cougar hunting season. Last year the season opened statewide on November 1st with quota of 35 cougars or 15 females, whichever came first, was reached. The quota of 15 (actually 16) females was reached on November 23rd. At least 7—possibly as many as 15—kittens were orphaned when their mothers were harvested.

For the coming season, the Commission proposes opening the season on January 1, 2009. The quota would be the same as in 2007. The season would run until March 31st or until the quota is filled. Cougars, unlike most North American mammals, can breed at any time of the year. Research on 29 litters of cougar kittens in the Black Hills showed that the highest probability of killing a mother with dependent kittens is between August and November, and the lowest, from January through February. So delaying the season should reduce the number of orphans.

It should also reduce the number of cougar hunters. Previously, the cougar season overlapped the deer and elk seasons, and many hunters purchased cougar licenses just in case they ran across a cougar.

Also included in the proposal is a provision that allows landowners outside the Black Hills Fire Prevention District (essentially the same as the Black Hills) to hunt cougars all year, as long as they purchase a license. Earlier this year the State Legislature rejected HR 1171, a bill that would have allowed people outside the Black Hills to kill cougars at any time for any reason. The Commission’s proposal comes close to overturning the legislature’s decision. Those of you who have been following cougar events in the central United States are aware of the importance of dispersers from the Black Hills as potential recolonizers.

ECF NEWS

This summer, **Julia B. Smith**, an undergraduate zoology major at Michigan State University, is researching and writing a paper for ECF on the real vs. perceived threat of cougars to humans and livestock, under the direction of our intern director, Dr. Marcella Kelly of Virginia Tech. In particular, she will be looking at these factors as they relate to South American pumas.

Thanks to Our Members and Donors Who Contributed \$25.00 or More to ECF This Year:

Jeffrey Brooks, State College, PA; Brian Donovan, Wayne, NJ; John Downen, Oshtemo, MI; Joedda Gore, Clinton, MS; Kerry Gyekis, Morris, PA; Tom Huhnerkoch, Lead, SD; Marcella Kelly, Blacksburg, VA; Douglas Paprocki, Lafayette, IN; Kathleen Parks, Abington, VA; John Pycha; Baldwin, MD; John Reynolds, Leesburg, VA; Fred Scheeren, Waynesburg, PA; Howard Stukes, West Jefferson, NC; Byron Stutzman, Boston, MA; Brian Vitelli, Guilford, CT; Stanley F. Warner, Farmville, VA.

Ben Shrader put together an excellent exhibit for ECF at the Bedford Outdoor Show, held in the Armory in Bedford, Virginia on March 8th. More than 1500 people attended. Helen McGinnis was there and helped him hand out many brochures.



Ben Shrader, in light blue shirt, and Helen McGinnis, in the green cap, at the Bedford Outdoor Show.

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Regular	\$15	\$25
Igmutaka*	\$25	\$35
Klandagi**	\$50	\$75
Catamount	\$100	\$150

*Lakota word for cougar
 **Cherokee for cougar (Lord of the Forest)

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