FIELD EVIDENCE OF COUGARS IN EASTERN NORTH AMERICA

CHRIS BOLGIANO, James Madison University, Harrisonburg, VA 22807; Eastern Cougar Foundation, Fulks Run, VA 22830

TODD LESTER, Eastern Cougar Foundation, P.O. Box 91, North Spring, WV 24869

DONALD W. LINZEY, Dept. of Biology, Wytheville Community College, Wytheville, VA 24382

DAVID S. MAEHR, Dept. of Forestry, University of Kentucky, Lexington, KY 40546-0073

Abstract: Confirmed physical field evidence of cougars living wild in several regions of eastern North America is beginning to accumulate. Related issues of legal status, habitat management, and social acceptance are also emerging. We document twelve instances in which various items of field evidence have been confirmed by biologists: three cases involving live animals, a dead body or body part; four cases of scats; three cases of tracks; and two videos. The geographic range of these incidents is New Brunswick, Canada to Missouri, and the date range is 1976 to 2000. Each case entails consideration of significant details, including the history of cougars in the local area, the circumstances of local habitat and prey, evidence of reproduction, credentials of confirming biologists and the possibility of fraud. Possible sources of these animals include remnant natives, escaped or released captives, and colonizers from known cougar populations in Florida, Texas and elsewhere. Since spring of 1998 at least 3 radio-collared Florida panthers have crossed north of the Caloosahatchee River for the first time since fieldwork began 20 years ago. The potential for reestablishment of a viable breeding population is more likely to be limited by human intolerance than biological constraints, especially in rural communities near public lands. An ecological benefit of a cougar population in the east might be to return an evolutionary selection force and population check on over-abundant deer. Outdoor recreationists and hunters are also likely to express interest in cougars.

INTRODUCTION

Native eastern cougars were believed extirpated throughout the east by the 1940s, but a growing number of sightings prompted the listing of *Felis concolor couguar* on the 1973 Endangered Species List (Bolgiano 1995). A field survey in the southern Appalachians by the U.S. Fish and Wildlife Service (USF&WS), however, failed to find conclusive evidence of cougars by the early 1980s, although a small number of possible deer kills, scrapes, and scats were identified. (Downing 1981).

Confirmed field evidence began to accumulate in the 1990s. The presence of at least a few individuals living wild in the east is now acknowledged by the U.S. Fish and Wildlife Service (Clark 2000). Issues of legal status, population viability, habitat management, and human acceptance are emerging. The Eastern Cougar Foundation (ECF), a 501(c)(3) organization, was founded by independent researcher Todd Lester in West Virginia in 1998 to compile the accumulating evidence, and to grapple with these issues.

As Vice President of the ECF, I'm here to present the evidence, and to grapple. Our Board of Directors includes David Maehr, former leader of Florida panther field research; Donald Linzey, in charge of mammal research for the All-Taxa Biodiversity Inventory in Great Smoky Mountains National Park; Melanie Culver, cougar geneticist who is also presenting a paper at this workshop; and Sue Morse, carnivore expert who gave the keynote address at the Third Mountain Lion Workshop in Prescott, AZ in 1988.

METHODS

Todd Lester of WV and Donald Linzey of VA have for many years passed out flyers asking people to call them if a cougar was seen, so communication networks were already established. Todd Lester expanded them through an eastern cougar web site and a listserv, which at times has included well over 100 people from South America to Alaska. Lester and Linzey standardized the procedures they use to narrow the large volume of sightings to the small percentage of credible prospects (Miller 1998). For those within a day's drive, they conduct field searches for hard evidence and scrutinize evidence collected by others. For more distant cases, one or more of us investigates through phone and email interviews. Written confirmation from recognized authorities is the only validation we accept. Melanie Culver at VA Tech tests samples and validates tests conducted by others.

RESULTS

Over the past two years we have compiled one dozen confirmed incidents from Ontario to North Carolina, some of them representing clusters of cougar activity (copies of any or all documentations are available from the ECF for the cost of photocopying and postage). Cases are categorized by type of evidence.

Three cases involve live animals, a dead body or a body part:here are four cases of scats:

1. In 1976, a male cougar was killed while killing sheep and a pregnant female was captured two days later in Pocahontas County, WV. The dead cougar was pictured in the local paper with WV Dept. of Natural Resources (WVDNR) officer Larry Guthrie. Correspondence between the USF&WS and the WVDNR focuses on discussion about whether the captured cougar is tame and would therefore constitute a threat to humans if released in the wild, but no documentation seems to exist on the actual fate of the cougar or any progeny.

2. In 1998, a cougar pelt was found along a road in Texas County, MO, near the Mark Twain National Forest and approximately 125 air miles west of the IL site. It is believed to be from a cougar that was treed and killed by raccoon hunters in 1994, the first cougar killed in MO since 1927. The MO Department of Conservation (MDC) uncovered a photo of the dead cat and successfully prosecuted two hunters, who admitted dumping the pelt. Gary Cravens of the MDC determined from witnesses that the hunted cougar had no tattoos and long, sharp claws, found also on the pelt. Genetic analysis of the pelt indicated a North American genotype. In addition, in the same general area, a video of a cougar was made by MDC agent Jerry Elliott in 1996, and two deer kills were confirmed as cougar kills by the MDC in 1998.

3. In July of 2000, a cougar was killed by a train in western Randolph County, IL near the Mississippi River and the Shawnee National Forest. A necropsy by Alan Woolf of the Cooperative Wildlife Research Laboratory at Southern Illinois University found a normal, healthy male aged 4 to 6 years belonging to the North American genotype, with normal claws, stomach contents of 100% fawn, and no tattoos. Many, if not most captive cougars are declawed and/or have tattoos.

There are four cases of scats:

1. In 1992 in central New Brunswick, Canada, Provincial wildlife biologist Rod Cumberland documented tracks and collected a scat that was analyzed by the Canadian Museum of Nature in Ottawa and found to contain showshoe hair bones and foot and leg hairs of cougar.

2. In 1994, a scat recovered by agents of the VT Fish & Wildlife Dept. near Craftsbury in north central VT was sent to the USF&WS Forensics Lab in Ashland, OR, where cougar foot hairs were found in it. These are presumed ingested during self-grooming. The sighting that prompted the search involved three cougars, and three sets of tracks were found, possibly indicating a family group.

3. In 1997, a scat collected in central MA by John McCarter, a staff member of the Paul Rezendes Tracking School, was sent to George Amato of the Wildlife Conservation Society in New York. DNA tests indicated cougar, a finding confirmed by Melanie Culver, who also found that the animal was of the North American genotype. The large, wild Quahbin Resevoir area of central MA has for many years been a locus of cougar sightings.

4. In 1999 in Ontario, Canada, Provincial wildlife biologist Lil Anderson collected a scat that was sent to the Alberta Natural Resources Service forensics lab in Edmonton for thin layer chromatography and found to be cougar.

There are three cases of tracks:

1. In 1990 in southwestern VA, Donald Linzey collected photos and cement casts of tracks that he confirmed as cougar. This is approximately 140 air miles from an incident in Russell County, VA in 1997, in which 25 goats were killed by an alleged cougar (not confirmed), and where personnel of the VA Dept. of Game and Inland Fisheries reported two separate cougar sightings, one of which included a kitten.

2. In 1994 in northwestern ME, approximately 150 air miles east of the confirmed New Brunswick site, two game wardens investigated a sighting of three cats near the St. Johns River and found tracks which they officially reported as cougar to Richard Hoppe, wildlife biologist for the ME Dept. of Inland Fisheries and Wildlife.

3. In 1996 in southern WV, approximately 100 air miles from the confirmed tracks in VA, Todd Lester made plaster casts of tracks that were confirmed by Lee Fitzhugh of the Extension Wildlife Service at University of CA, Davis, and by David Maehr. This is an area with a long history of cougar sightings and deer kills thought to be cougar.

There are two videos:

1. In the early 1990s in the western mountains of MD, a home video was obtained and verified by Leslie Johnston, District Wildlife Manager of the MD Dept. of Natural Resources, who made it available to MD public TV, where it was shown many times, and to various biologists' meetings.

2. In 1991 in NC just east of the Great Smoky Mountains National Park, a home video was obtained and verified by Donald Linzey. The Great Smoky Mountains was one of the areas that Bob Downing, who did the USF&WS field survey mentioned earlier, felt could have supported native cougars through the twentieth century, because roughly 20% of the park's 500,000 acres was never logged and remained an undisturbed refuge.

DISCUSSION

Fail-safe chain of custody documentation for all evidence is unattainable, and it's possible that one or a few incidents may be forgeries. But it is unlikely that all of them are. Questions are shifting to: 1) whether these are escaped or released animals other than the native eastern cougar or Florida panther subspecies (*Puma concolor couguar* and *Puma concolor coryi*, the only ones listed in the Endangered Species Act); and 2) whether these are individual, transient animals or a breeding population(s). The answer to the first question may never be resolved, because of the low genetic variability of North American cougars and perhaps more importantly because of the small sample size of known eastern cougars (Culver 1999).

In addition to remnant natives and escaped/released captives, a third possible source is colonizers from known cougar populations in Florida, Texas, and Montana, and suspected populations in Saskatchewan and Manitoba (Anderson 1983, Wrigley 1982). Since spring of 1998, at least three radio-collared Florida panthers have crossed north of the Caloosahatchee River west of Lake Okeechobee for the first time since fieldwork began twenty years ago (Maehr 2000). There is also evidence of increasing cougar activity in Kansas, Nebraska, Oklahoma and other areas of the west that could indicate that cougars are reclaiming former ranges or even expanding into new areas (Henderson 1992, Duggan 2000, Pike 1999).

It's also possible that cougars from two or all three sources are interbreeding in the east. Three clusters of confirmation raise intriguing questions about reproduction. First, the 1994 VT confirmation involved a possible family group, and New England, especially Maine, continues to report sightings of mothers with kittens, some with field evidence awaiting confirmation. Although there are concerns about development of the North Woods, at present there is a substantial amount of wild land there.

Second is a cluster in the Southern Appalachians. The ECF is biased toward receiving reports from this region because we are based there. However, there are some seven million acres of national forests and parks spread from Virginia to Georgia, the largest complex of public lands east of the Mississippi River. Included are 47 Congressionally designated wilderness areas, many of which are so remote and rugged that they still contain old growth that was never logged. It seems likely that if cougars are breeding, it would be in this region. A habitat analyses based on GIS layers of forest cover and human population, road, and deer densities showed that good cougar habitat in the central Appalachians does exist in and around these public lands (Taverna 1999).

Third is the cluster of activity in MO and the confirmation just across the Mississippi River in IL. It seems unlikely that cougars could cross the river, but it was also deemed highly unlikely that Florida panthers could successfully navigate through intense human development and cross the Caloosahatchee River. Given the remarkable capabilities of this animal, no possibility should be absolutely ruled out.

CONCLUSION

Given the well-known regrowth of forest cover and resurgence of deer herds across the east, it's likely that human rather than biological constraints will limit the establishment of viable cougar populations. There is a potentially positive public reaction to the animals. Fifty-six conservation groups across the east endorsed the recent ECF request that the USF&WS expand the Similarity of Appearances rule of the ESA from Florida throughout the east (Lester 2000). That request was denied pending documentation of a breeding population. If viable cougar populations with their potential for depredations are to be tolerated, however, much educational outreach remains to be done in rural communities, especially around public lands. It may be possible to persuade hunters to accept perceived cougar competition for deer, and simultaneously to reduce the possibilities of cougar attacks on humans and livestock, by allowing non-consumptive chasing with dogs in restricted areas as a means of aversive conditioning (Hebert 1996). There may also be possibilities for future ecotourism. Most importantly, a viable cougar population would return a native predator and offer ecosystem benefits such as an evolutionary selection force and population check on currently over-abundant deer.

Acknowledgements: We wish to thank the Sierra Club and the Southern Appalachian Forest Coalition for making it possible to present this paper.

LITERATURE CITED

Anderson, A. E. 1983. A critical review of literature on puma (Felis concolor). Special report no. 54. Colorado Division of Wildlife. 91 pp.

Bolgiano, C. 1995. Mountain lion: an unnatural history of pumas and people. Mechanicsburg, PA: Stackpole Books. 209 pp.

Brocke, R. H., and F. G. VanDyke. 1985. Eastern cougars: the verifiability of the presence of isolated individuals versus populations (comment on Downing, Cryptozoology, 3:31-49, 1984). Cryptozoology 4:102-105.

Clark, J.R. 2000. Letter of June 21 to Todd Lester, President, Eastern Cougar Foundation. 1 p.

Culbertson, N. 1976. Status and history of the mountain lion in the Great Smoky Mountains National Park. Research/Resources Management Report no. 15. Gatlinburg, TN: National Park Service Southeast Region, Uplands Field Research Laboratory, Great Smoky Mountains National Park. 51 pp.

Culver, M. 1999. Molecular genetic variation, population structure, and natural history of free-ranging pumas (Puma concolor). Dissertation. College Park, MD: University of Maryland. 225 pp.

Downing, R. L. 1981. The current status of the cougar in the Southern Appalachian [sic]. In: Proceedings of The Nongame and Endangered Wildlife Symposium, Athens, GA, August 13-14.

Downing, R.L. 1984. The search for cougars in the eastern United States. Cryptozoology 3:31-49.

Duggan, J. 2000. Examinations reveals [sic] shot cat was healthy, Lincoln Journal Star [NE] November 2. 1 p.

Hebert, D., and L. Lay. 1997. Cougar-human interactions in British Columbia. In: Proceedings of the Fifth Mountain Lion Workshop, 27 Feb.-1 March, 1996, p. 44-45. Southern California Chapter of The Wildlife Society.

Henderson, F. R. 1992. Update: Puma in Kansas? Kansas State University Cooperative Extension Service. 22 pp.

Lester, T. 2000. Letter of March 20 to Jamie Clark, Director, U.S. Fish & Wildlife Service. 2 pp.

Linzey, D. W. 1999. Cougars in the Southern Appalachians. In: Proceedings of the New River Symposium, April 15-16, Boone, NC, p. 10-15.

Maehr, D.S. 2000. Personal communication.

McBride, R.T., et al. 1993. Do mountain lions exist in Arkansas? In: Proceedings of the Annual Conference of the Southeastern Fish and Wildlife Agencies 47:394-402.

Miller, J. 1998. Evidence for an eastern cougar reassessment. M.S. Thesis. Oxford, OH: Miami University.

Nowak, R.M. 1976. The cougar in the United States and Canada. New York Zoological Society and U.S. Fish & Wildlife Service.

Pike, J. R., et al. 1999. A geographic analysis of the status of mountain lions in Oklahoma, Wildlife Society Bulletin 27:4-10.

Roof, J. C., and D. S. Maehr. 1988. Sign surveys for Florida panthers on peripheral areas of their known range. Florida Field Naturalist 16:81-104.

Taverna, K. et al. 1999. Eastern Cougar (Puma concolor cougar): Habitat suitability analysis for the central Appalachians. Charlottesville, VA: Appalachian Restoration Campaign. 23 pp. www.heartwood.org/arc

Tischendorf, J. W. and S. J. Ropski, eds. 1994. Proceedings of the Eastern Cougar Conference, Gannon University, Erie, PA, June 3-5. Ft. Collins, CO: American Ecological Research Institute. 245 pp.

Wrigley, R. E., and R. W. Nero. 1982. Manitoba's big cat: the story of the cougar in Manitoba. Winnipeg: Manitoba Museum of Man and Nature.

Young, S. P., and E. A. Goldman. 1946. The puma, mysterious American cat. Washington, D.C.: American Wildlife Institute. 358 pp.