



Summer 2006

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## **BOARD MEMBER'S COMMENTS---Jay Tischendorf DVM**

The subject of cougars in eastern North America has occupied a prominent part of my life for over 25 years. I still have a copy of the 1978 Audubon Magazine article that started me on this winding trail. That article mentioned the legendary Bob Downing, who is also today a member of the ECF Board of Directors. I vividly recall the thrill when, after several years of correspondence, Bob and I finally met at his home in South Carolina on a spring day in 1987. Another such thrill I had when, in 1992, I knocked on a door in Fredericton, New Brunswick, and met the dignified widow of Bruce S. Wright. This World War II frogman-commando, wide-ranging biologist, and early champion for the cougar in the East was another one of my all-time heroes.

Almost a century has passed since the cougar, also known as puma, was officially declared extinct in eastern North America. So, where exactly are we today with the controversial, elusive, evocative, cougar-in-the-east story? If one aspires to having free-ranging puma populations in the East, as ECF does, then some progress has definitely been made. We collectively have been able to organize groups like ECF, Friends of the Eastern Panther, and the Cougar Network. We've held cougar conferences and brought together diverse, devoted people to share the best current information and data on the subject. We've capitalized on the reach and power of the Internet to spread the good word about puma conservation. And new research technologies have opened windows heretofore shuttered onto the remarkable lives and ancestry of these graceful felids.

But legally the cat is, arguably, in a more nebulous, and thus more precarious position than when it was first listed as an endangered entity under the federal Endangered Species Act of 1973. Florida's endangered pumas receive the benefit of a Similarity of Appearance clause, effectively protecting all of the state's pumas regardless of their sundry origins. Would it make sense to extend to pumas in other areas of the Midwest and East the same legal status?

There are other pressing questions. For instance, how does puma management in the West---or Florida---impact the potential for puma recovery in other areas of the species' historic range? Indeed, what constitutes optimal evidence-based management of pumas? Do the politicians and people of midwestern and eastern North America even want pumas to reclaim their range? Why are woefully unqualified persons allowed to own and abuse captive pumas and other wildlife? Critical questions like this are a priority and need to be

answered. Soon. Yet we continue to squabble over puma nomenclature and taxonomy, sightings hoaxes, conspiracy theories, the existence of black panthers, and the subtle nuances of cat and dog tracks.

Let me share something with you. We need more momentum, folks, not minutiae. Rest assured, ECF will continue to push for puma recovery in eastern and midwestern North America. But in many cases it will also take money and the dedicated energy of many more people to generate that momentum. In this regard, I ask all ECF members to look for ways to help, especially in recruiting new people to join our organization. Only together can we ever hope to succeed in bringing recognition, protection, and a future to our namesake cat.

Honestly, I have to credit the quiet cat itself with most of the progress that has been made on its behalf. While we've been cussing, discussing, and chasing our tails---repeating mistakes of the past---the capable and persistent puma has been trying to reclaim some of its former range. From Nebraska and the Dakotas to Minnesota, Oklahoma, Illinois, and Missouri, cats killed by cars, locomotives, and other high-powered projectiles continue to make the news. But others are in the news too. These pumas are captured ephemerally in haunting camera trap photos, gritty track casts, Canadian hair snares, and in the memories of the few people lucky enough to be in the right place at the right time to see one of these golden ghosts glide past.



Whether or not there remain any cryptic, undiscovered eastern enclaves of remnant cougars, it seems at least some wandering western cats are surviving the gauntlet and grinder of re-colonization. As with the young people who are enthusiastically today taking up the flag of wildlife conservation and puma recovery, in these cats--if not in ourselves---there is hope.

*Jay Tischendorf is a biologist-veterinarian and director of the American Ecological Research Institute (--AERIE). He is one of the original Board Members of the Eastern Cougar Foundation*

## ECF REMOTE CAMERA PROJECT—2006

This year the Eastern Cougar Foundation's 18 PhotoScout remote cameras were deployed in four different states. Remote cameras are triggered by heat and motion, so that animals photograph themselves without need of a photographer.

In 2003, ECF had 20 cameras, purchased with grants from the Summerlee and Norcross Foundations. ECF President Todd Lester set them out along game and hiking trails and little used roads closed to public vehicles in the southern Monongahela National Forest of West Virginia between April and September in 2003 and 2004. Literally hundreds of wild animals—including deer, bobcats, coyotes, wild turkeys, and raccoons—were “captured.” There were two “mystery animals” which might have been cougars but because not enough of the animals were shown, had to be considered “indeterminate.” Two cameras were stolen—one by a human and one by a bear.

This year the urine of female cougars in estrous is being used as a lure. Pheromones derived from the urine of estrous females have lured cougars into “hair traps” in New Brunswick and Quebec where they were not thought to be present. Hair snagged on rubbing posts and barbed wire enclosures and judged to be cougar by visual comparison with known samples was submitted for confirmation by DNA analysis. ECF put scent bottles filled with estrous urine near the cameras. It will be most interesting to learn if the cougar urine attacks or repels animals other than cougars.

Two cameras will be sent to Jay Tischendorf, a member of ECF's Board of Directors and an experienced cougar researcher. He lives in Montana. The cams and scent lures will be set out where cougars are likely to be present and will serve as controls.

Six cameras have gone to Kentucky. Judy Tipton and her associate Mark Gumbert, a consultant specializing in small mammals, set them out in eastern Kentucky in the Cumberland Gap National Historic Park, and on Judy's private property, which is remote and south of where a cougar kitten was killed on a highway in Floyd County in 1997. The young man who hit the kitten reported that another small and one large shadowy figure made it across safely across the road. So we can assume that there were at least two cougars in the region in 1997.

Helen McGinnis and Mary Ann Honcharik put out another six cameras in the Dolly Sods area in north-central West Virginia. In terms of sightings, the Dolly Sods is the hottest area in the state. So far, the remote cams on Dolly Sods are known to have taken 30 deer images, 6 bear pictures and one coyote portrait (but no cougars).

Another ECF member has begun a project in the south-central ridge and valley section of Pennsylvania to capture photographs of cougars, bobcats and other large predators. Initially he set three scent posts plus remote cameras (without an attractant), which were enclosed by two-strand barbed wire fences similar to those used in eastern Canadian cougar studies. Prior to putting cougar urine (not necessarily from females in estrous) in a scent post, animals such as deer, coyote, raccoon, and crows visited the site. Since the

scent has been in place the number of animals has dropped precipitously; the last two months we have only captured a fox squirrel. Apparently the cougar urine is scaring them off. Four other cameras were set up at trail crossings in the vicinity of recent sightings. All cameras were made possible by two very generous gentlemen from York, PA.

In mid May, the Eastern Cougar Foundation loaned four of its PhotoScout cameras to the project and made urine from estrous female cougars available. They have been placed in Michaux State Forest in south-central Pennsylvania.

Exposed film will be sent to Todd for processing and data logging. The cameras will be removed from the field before the onset of the fall hunting seasons. Let's hope that we will have exciting news before that time!

### **ECF OUTREACH**

Two members of ECF have been giving illustrated talks about cougars. Chris Bolgiano gave her PowerPoint talk, "Looking in Our Window: The Many Faces of Eastern Cougars," on April 18<sup>th</sup> to the Juniata Valley Audubon Society near Altoona, Pennsylvania. Unfortunately, Chris' time on the "presentation trail" will be limited going forward due to other personal and professional obligations.

Kerry Gyekis has put together his own PowerPoint presentation, "The Eastern Cougar: What is Real and What is Not." He gave it for the first time on March 18<sup>th</sup>, when he was the featured speaker at the Pennsylvania Unified Sportsmen's state-wide spring membership meeting. The talk was well received and was followed by a good half hour of questions in a positive, interactive atmosphere. Right after the meeting two men were going out to dig up a cougar carcass they claimed they knew about, but it has yet to appear.

In late April Kerry was part of a forum for the Audubon Society in western Pennsylvania. The other presenters were representatives of the Pennsylvania Game Commission and the US Department of Agriculture. By the end of the meeting, all three men were working together in answering questions. According to Kerry, after the meeting, the local Game Protector came up and thanked him for the presentation, saying, "You did a good job." This is certainly validation that ECF's balanced, evidence-based approach to the subject of cougars works and is appreciated.

Kerry gave another talk on May 11<sup>th</sup> to the Regional Kiwanis Club at Blossburg, Pennsylvania. His one-hour presentation was again well received and followed by a half hour of questions and answers.

In all of his presentations, Gyekis begins with a description of himself—who he is, his background, and his experience—and then moves on to the big picture, using a map compiled by the Cougar Network. He then takes up cougar biology, physiology, reproduction and ranges, and documented kills of cougars in the Midwest. That's

followed by a mini-course on tracking, and then a discussion of human-cougar interactions, confrontations and attacks. From there, he moves on to hoaxes, sighting reports in the East (especially in Pennsylvania) and then to real evidence from the East and some information on distinguishing cougars from domestic cats.

People are hungry for accurate information on cougars in the East. If you would like to become knowledgeable on the subject and get help in putting together your own PowerPoint or slide presentation, let us know. And please let us if your group would like a speaker for an upcoming meeting. ECF's experts are available.

### **MIDWESTERN-EASTERN COUGAR NEWS**

*Information is derived from news articles and reports. Citations are omitted to save space but are available upon request.*

**Florida:** At the end of January of this year, the US Fish and Wildlife Service (FWS) released a draft of the Third Revision of the Florida Panther Recovery Plan. (The original was approved in 1981.) Overall, the listing of the panther as an endangered species has been successful. The current panther population in southern Florida is estimated to be between 80 and 100 individuals. When the population was listed in 1973, there were no more than 30. Many panther experts believe that introduction of Texas pumas, which provided an infusion of new genes to the inbred Florida population, is one of the reasons for the increase in panthers.

The panther has performed well as an “umbrella species.” Each panther requires thousands of acres as habitat. Their need has led to public acquisition of many square miles of land in southern Florida, benefiting many species of plants and animals besides the panther.

But the FWS has been widely criticized for failing to oppose proposals for new developments in southern Florida. The Florida Wildlife Federation has accused them of letting developers essentially write their own Biological Opinions for new home developments, drainage ditches and road improvements. Each project in itself may not have a major impact on panthers, but collectively, they do.

The panther population is outgrowing its restricted range in southern Florida. In the last few years, the teeth and claws of other panthers has been a major cause of mortality, along with vehicle collisions. A least 12 panthers had died on highways by mid May of this year. Subadult males are most likely to die. Females occupy smaller territories, sometimes sharing one with their mother. Adult males have much larger territories that may overlap the territories of several females. They are intolerant of other adult and subadult males, so male kittens must leave their mother's territories at 1.5 or 2 years of age and look for territories of their own.

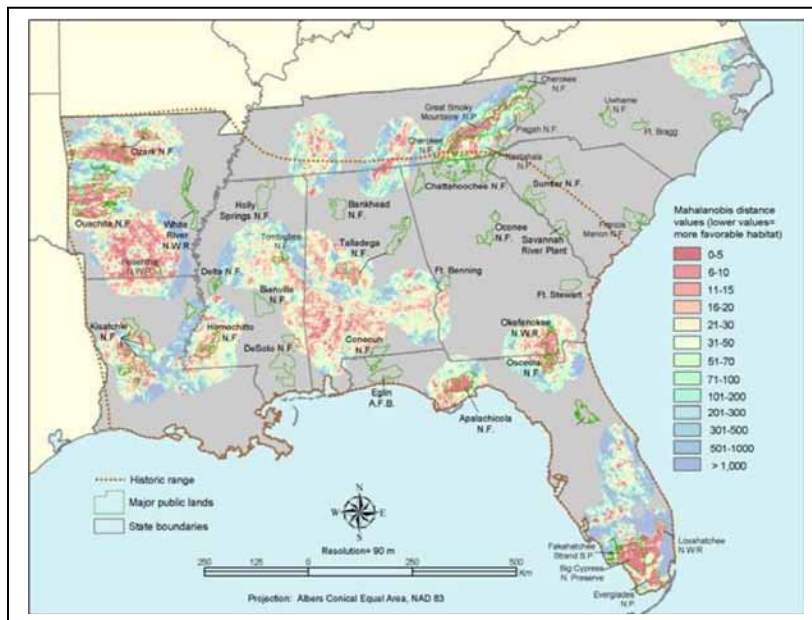
At least 4 subadult males have managed to cross the Caloosahatchee River, which is south of Ft. Myers and Cape Coral, since 1999. Before 1999, biologists assumed that this

wide river was an uncrossable obstacle to panthers. Then, in 1999-2000 a radio-collared young male crossed the river and went north to central Florida between Tampa and Orlando. He wandered around for several months and then left the area. Radio contact was lost, but he apparently was heading back to the Caloosahatchee River. Another young male went all the way to northern Florida, where he was killed on I-95 on the St. Johns-Flagler County line in June 2005. These young dispersers are probably finding suitable habitat and plenty of deer, but one thing is missing—a potential mate. So they keep wandering.

Another indication that the panther population has outgrown its home in southern Florida is the rising number of complaints from members of the Miccosukee Indian tribe, who live in the middle of the panther range. One female in particular, FL #124, has begun to approach people as close as 15 feet, showing little concern. The FWS decided that #124's behavior did not warrant removal, but one of her sons was removed to another locality in 2004.

In response to Indian concerns and four instances of depredation on pets and livestock since 2002, the FWS released a draft Environmental Assessment for “Guidelines for Living with Florida Panthers” in July. It is likely that more problem panthers will be removed from the wild in the future and that some will be euthanized. It is unfortunate that no habitat is available elsewhere for these essentially homeless panthers.

In order maintain genetic diversity and be reasonably certain that panthers will not be eliminated by a catastrophic event, two populations outside of southern Florida comprising at least 250 individuals need to be established. The 2<sup>nd</sup> version of a habitat assessment study to identify potential sites for reintroduction of panthers in the Southeast



Map from 2003 Florida Panther reintroduction report by Thatcher et al. The best areas for panther reintroduction are shown in orange and red.

outside of southern Florida, conducted by Cindy Thatcher and two coworkers at the University of Tennessee, was published in the Journal of Wildlife Management, May 2006. The Thatcher Report gave highest ranking to 9 regions, listed here in order of suitability: Okefenokee National Wildlife Refuge (NWR), Ozark National Forest (NF), Felsenthal National NWR, southwest Alabama, Ouachita NF, Apalachicola NF, Kisatchie NF, Homochitto NF, and southwest Arkansas.

The three highest ranked areas have problems. The Okefenokee NWR is mainly water. Cougars are already being documented in Arkansas. They are perhaps recent immigrants from the West but could also be partially descended from individuals that have been in the state much longer. One obvious choice, the Great Smoky Mountains National Park, was not a final choice because the total acreage of undeveloped land is too small.

Unfortunately, most of the southeastern states are skeptical about the possibility of reintroducing panthers or other cougars to their states. Wildlife officials from Arkansas, Georgia, Mississippi and Alabama have expressed concern about human safety and risk to livestock. Missouri also chimed in to express their opposition, even though that state is not in the assumed former range of the panther. It is clear that enormous amounts of education and outreach will be necessary to get the public and the state wildlife agencies to support reintroduction of panthers.

**Michigan:** In May the Michigan Wildlife Conservancy (MWC) announced publication of a peer-reviewed report on the DNA analysis of scats collected on Upper Peninsula (UP) and Lower Peninsula (LP) of Michigan between 2001 and 2003.\* Patrick Rusz of the MWC and co-workers collected 297 scats from 12 areas with many reported cougar sightings. Only 12 of the scats could be identified. Of these, 10, from 8 separate areas—4 on the UP and 4 on the LP, were identified as cougar. Geographic origin—North American--could be determined for only one cougar scat. Individual cougars could not be identified from the scat DNA. The collecting localities were widely spaced in 8 separate counties, so the authors conclude that at least 8 cougars lived in Michigan at the time the scats were collected.

This article has not settled the dispute as to whether wild cougars exist in the state. Wildlife officials in Michigan are inclined to believe the results of the DNA analyses performed by Dr. Swanson and his associates but are dubious about the source of the cougar scats. And if the scats were collected in Michigan in the wild, were they deposited by isolated individuals—perhaps former captives or recent immigrants from the West—or are there *breeding populations* on the UP and LP? A breeding population of cougars is one that has enough cougars that the cats set up normal territories, breed and disperse. The only known breeding populations east of the Rocky Mountains are in the Black Hills, southern Florida and perhaps in Texas. Widely scattered cougars—not matter what their origin—almost certainly do breed occasionally, but they are not considered members of breeding populations.

By the above definition, no breeding populations occur in Michigan. But do any wild cougars live in Michigan? It's all a matter of whom you believe or distrust. The Cougar

Network recognizes only one confirmation since 1990—a hair sample from Menominee County on the UP from collected from an automobile bumper in November 2005 after a motorist reported hitting a large cat.

The MWC claims that some well publicized incidents on the Lower Peninsula are confirmations of cougar, including the kill of a horse in Jackson County in late August 2005 and severe facial lacerations that caused another horse to be put down in Berrien County in early December. Most biologists do not believe these injuries were caused by cougar.

\* “Detection and classification of cougars in Michigan using low copy DNA sources” by Bradley J. Swanson and Patrick J. Ruzs. 2006. *American Midland Naturalist* 155:363-372.

**Missouri:** In early April that the Missouri Conservation Commission had voted to move the cougar from the state’s endangered list to the list of extirpated species. The Department of Conservation (MDC) recognizes only eight confirmations since 1994. The last native cougar documented in the state was killed in 1927. The MDC is saying that the few cougars that may be in the state now are not, in their opinion, a remnant population that has survived undetected for decades and that there is no evidence to suggest that recent arrivals have established a breeding population.

The definition of “breeding population” is discussed in the section on Michigan. Evidence is easily found in areas that have cougar populations, such as numerous tracks, prey kills, scrapes made in scent-marking territories, and photos taken by the thousands of motion-detecting game cameras that hunters use to monitor trails. Also missing from Missouri, but routinely found in every other breeding population known to exist, are carcasses of cougars on the highways--males and females of all ages.

According to John W. Smith of the MDC, a number of people are concerned that the agency has been encouraging cougars in the state. The Commission decided to make it clear that the official status is more accurately described as being “extirpated”, and that the agency will not take an active role in restoring cougars to Missouri.

The MDC does not want to take any special measures to encourage re-establishment of a breeding population. Many people are irrationally frightened of the very idea that cougars may occur in the state. Missouri has a large cattle industry and many sheep as well. According to Dave Hamilton, furbearer specialist for the MDC, there are few large blocks of public land where conflict between humans and cougars would be minimal. The Mark Twain National Forest in the Ozarks includes 1.5 million acres of public land, but it is comprised of highly fragmented separate parcels.

Delisting may have no effect on the number of cougars in Missouri. It does not mean that an open season on cougars will follow. They would still be protected as furbearers with a closed season. Current state law allows people to kill cougars to protect their property, if they are attacking or killing livestock or domestic animals, or they are attacking humans. If there is a proposal to institute cougar hunting, the public would be notified and would have the opportunity to express their opinions.



Hamilton says that hundreds of alleged cougar sightings have recently been reported in the northern part of the state. Some of these have resulted in panic. It is no coincidence that the bobcat population has exploded in the same region. When evidence is available, it very often indicates a bobcat or dog tracks, and occasionally other animals or their tracks, have been seen rather than a cougar.

**New York--The Border Video:** On September 30, 2005 a large cat wandering in the dark in a field on the line between Clinton County, New York and Quebec set off a hidden video camera controlled by U.S. Border Patrol agents in Swanton, Vermont. It walked around for about 20 minutes as the camera zoomed in and out. Outdoor columnist Dennis Aprill, who writes for the Press Republican, saw the video more than a month later. He loaned a copy of to Channel 5 TV of Champlain, where a technician enhanced the images. They put the video online, where it could be seen for at least two months.

Seen in motion on the video, the cat appears to have a small head, a long neck, and a very long tail that was never raised above the level of the hindquarters—all features of a cougar rather than a domestic cat. Unfortunately, the image is fuzzy because it was filmed at a distance of 2 to 3 miles. Todd Lester and Stuart Kenn both made stills from the video. Stuart attempted to apply Fred Scott's Head-Body calculations; the animal seems to have the body proportions of a cougar, but the images were too poor to be

Stills from the Border Video. The one on the left was made by Stuart Kenn from the video that was made available online by Channel 5 TV of Champlain, NY. Todd Lester made the one on the right from a video of the broadcast



certain. The Eastern Cougar Foundation and the Cougar Network independently submitted the images to a number of cougar experts and got a wide range of opinions, from definitely house cat to definitely cougar to indeterminate.

This image is likely to remain on the indeterminate list, but it does call our attention to the fact that there have been few pieces of evidence that from east of the Mississippi River since 1990 that have survived the Cougar Network's rigorous criteria for confirmations. (Go to [www.cougarnet.org](http://www.cougarnet.org).) With the exception of two dead cougars found near the Mississippi River in western Illinois—probably part of the eastward range expansion from the West—the most recent confirmation outside of Florida dates from October 2004 and comes from Fundy National Park in New Brunswick.

**North Dakota:** Although North Dakota is not one of the two states east of the Rocky Mountains and Texas with a recognized breeding populations, officials of the state's Game and Fish Department held their first cougar hunting season starting on September 2, 2005. The experimental season was to run until March 12, 2006 or until the quota of five cougars was reached. There was no organized opposition to the hunt, in contrast to the situation in South Dakota. The season ended on January 15, 2006 when hunters killed the fifth cougar. The take included an adult female and a 39 lb. 4-6 month-old kitten. All the harvested cougars were in good physical condition.

The reasons for the season were to learn about the state's cougar population and habitat preferences, and quite likely also address the concerns of the state's human residents. Most notable was an apparently hostile encounter between two mountain bikers who had stopped for a rest in Theodore Roosevelt National Park in June 2005. Twice, the cougar came within 10 feet of the couple but eventually left when they stood their ground and shouted at it.

The ND Game and Fish Department issued a status report in June. They have determined that the best habitat, with vegetative cover for stalking, resting and rearing kittens and/or rugged topography, is in the Badlands and Missouri River Breaks in the western part of the state. The Turtle Mountains in the north-central part of the state, which extend into Manitoba, may also be able to support a small population. Outside of the best habitat, cougars are using wooded streamside for dispersal and as temporary living areas. Overall, North Dakota may have the potential to support 45-74 adult cougars provided they are not subjected to hunting.

Another experimental hunting season with a take of 5 individuals is planned for September 1, 2006 to March 11, 2007.

**Oklahoma:** In early March, S.B. 1296 passed the Oklahoma legislature. It authorized the Wildlife Conservation Commission to “declare an open season on mountain lions, black bears and river otters.” Small resident populations of cougars have been verified in parts of Oklahoma for about twenty years, but the number of confirmations is small. The Cougar Network recognizes only seven confirmations in the state since 1990. Four of

them are clustered in the extreme western tip of the panhandle, and three of these records represent dead cougars. No attacks on humans or livestock have been documented.

According to the Oklahoma Department of Wildlife Conservation, the bill was a hysterical reaction to cougar sightings in Broken Arrow, at the southeastern edge of Tulsa, in November 2005. A nature park was shut down and the activities of students in two elementary schools were curtailed.

The final version of SB 1296 allows the state to set hunting seasons on bears and mountain lions, but their populations would be studied before seasons would be adopted. Otters were included in the bill because of the perception that they have reduced fisheries in the southeastern part of the state. The final bill allows the state wildlife department to set a season for trapping otters if it desires. Presently they are protected.

**South Dakota:** Last year, the South Dakota Dept of Game, Fish and Parks (DGFP) held its first-ever cougar hunting season in the Black Hills. A last minute appeal to stop the hunt brought by the California-based Mountain Lion Foundation and Sharon Seneczko, founder of the Black Hills Mountain Lion Foundation (<http://www.blackhillslions.com>), was unsuccessful. A total of 13 cougars, including five breeding-age females, were killed between October 1<sup>st</sup> and 24<sup>th</sup>. Overall, out of an estimated population of 165, 40 cougars were known to have been killed last year. Besides the take by hunters, 9 died in vehicle collisions, 8 were removed by wildlife officials, and the remainder died of miscellaneous causes. The DGFP announced it had sold 2294 cougar-hunting licenses in 2005. Most hunters were satisfied with the hunt; 46% said they saw cougar tracks or other sign, and 14% saw a cougar.

This year the cougar hunting season that will run from November 1<sup>st</sup> to December 31<sup>st</sup>. The later season would allow deer hunters to buy licenses and participate. The quota in the Black Hills would be doubled to 25 cougars, including no more than eight breeding-age females. The higher quota is based in part on additional research that indicates cougars in the Black Hills may have overlapping territories that are smaller than previously thought, and that the carrying capacity may be as high as 210 cougars.

The DGFP announced that research on the Black Hills cougars will continue for at least another three years so that wildlife officials will have a better idea of the population and a sustainable take by hunters.

The importance of the Black Hills as a source of dispersers that are colonizing the prairie states and ultimately the “Far East” is becoming ever more obvious. As of late February, only 28 of 34 radio-collared cougars were still in the Black Hills. The rest had left the area. Two of these long-distance travelers were killed by hunters in Montana. One had moved at least 450 miles to the Judith Mountains near Lewiston in the central part of the state. Another radio-collared cougar was taken near Custer, a minimum of 180 miles. Another collared two-year-old died near Valentine, Nebraska, on June 27<sup>th</sup>. He’d been collared near Pringle in the Black Hills in December and lived in nearby Custer State Park until mid April. In 2004, a dispersing male from the Black Hills went at least 650

miles into northern Oklahoma before being hit by a train, and another went as far as the northwestern corner of Minnesota, where radio contact was lost.

## **The Validity of the Quabbin Skull**

By Joseph A. Lankalis

**HISTORY:** In November 2002, the remains of a cougar carcass were allegedly found between Gates 8 and 9 at the Quabbin Reservoir in central Massachusetts. The site is located near Pelham between Route 202 and the reservoir. The skull and jaws were collected by Rich and Sue O' Malley (according to the museum label, but the last names of the finders are in doubt). They are presently in the Museum of Comparative Zoology at Harvard University, cataloged as MCZ 63600. In 1997 the presence of a cougar was verified by a scat found at a beaver kill.

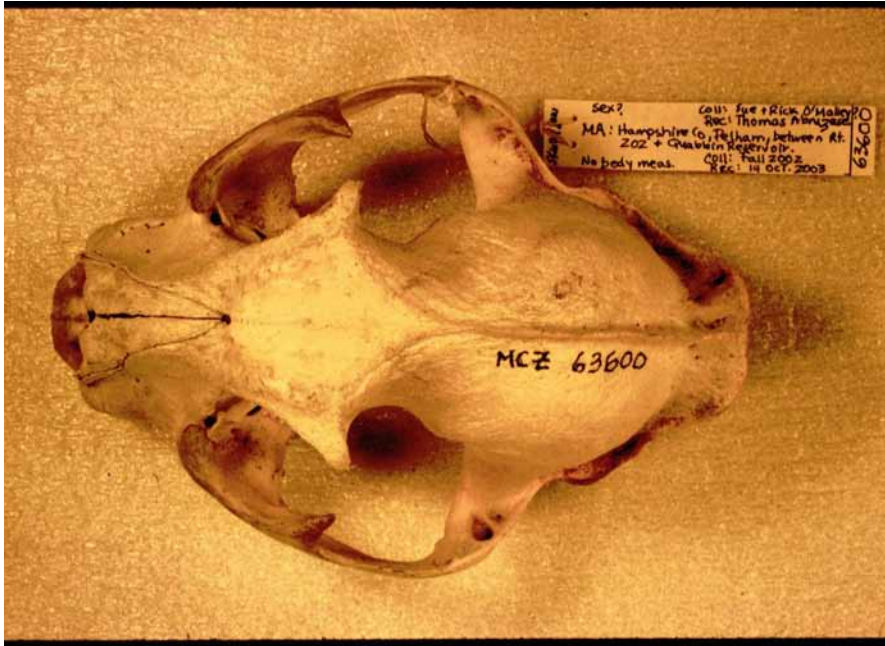
In August of 2003, the O'Malleys offered the skull to the first responder on the New England Mountain Lion Discussion Board. It was accepted by Thomas Abruzese, who donated it to Harvard on October 14, 2003. The O'Malleys said they were moving and no longer wanted the skull. They soaked it in Clorox to remove the smell. Clorox oxidizes DNA, an important aspect that needs to be studied in this specimen.

Mr. O'Malley told Abruzese where he had collected the skull. Abruzese went to the site and found ribs, a bone from a right hind foot (metatarsal), and an arm bone (ulna). He donated them to the MCZ, which identified the ribs as bear and the other two bones as cougar (MCZ 63599). The results of a regression analysis done to determine if the ulna and skull came from the same individual will be presented in the next newsletter.

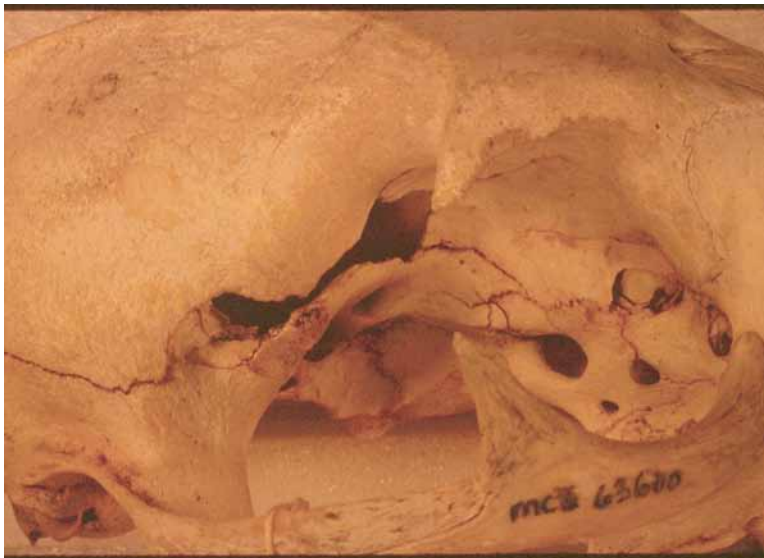
**SIGNIFICANCE:** The skeletal remains of a cougar were found in the wild in the region formerly occupied by the assumed subspecies, *Puma concolor cougar*, the so-called eastern cougar. Melanie Culver's investigation of the DNA of cougars throughout their range in the Western Hemisphere determined that there is only one subspecies in all of North America. But distinct populations exist today and undoubtedly did in the past. Based on only 7 skulls—from New York (5), Pennsylvania (1), and West Virginia (1)—E.A. Goldman (1946) decided that there were average differences between skulls from different regions, and that the skulls of the northeastern "subspecies" most closely resembled Florida panthers (*Puma concolor coryi*). Native cougars of the northeastern US are assumed to be extinct. If the Quabbin skull most closely resembled that of historic specimens of northeastern cougars, it could indicate that native cougars still survive.

**ANALYSIS:** The sex and geographic origin will be analyzed in a later paper. For now, observations relating to its validity as a wild animal will be discussed.

The skull apparently came from an old individual. The teeth show considerable wear but no staining. The incisors and canines especially show well worn cusps. The lower left and upper right canines are broken and well rounded, indicating that those teeth were



Views of the Quabbin skull, seen from the top (dorsal view) and a closeup of the damaged area.



broken a long time ago. The ventral view of the skull shows the sphenoidal sutures are well fused. The lateral views show well fused parietal-temporal and parietal-frontal sutures. Overlying the parietal-frontal sutures are the bregmata, or parietal processes, a feature found only in cougars. The sutures between the premaxillary and the maxillary are almost completely fused. The incisors are flat topped. All of these natural features indicate old age. Unstained teeth whose extent of wear does not seem to match the extent of suture fusion may indicate the possibility of captive origin.



The acquired features of the skull are the presence of broken and worn canines, and bullet damage to the right side above the mastoid on the temporal bone and on the frontal bone in the orbital region below the supraorbital process. Broken worn canines are common in old wild cougars. The suspected bullet damage indicates that the cat's demise was human-related. The characteristics of the bullet damage conform to a wound delivered at point blank range according to DiMaio (1999). The cat was probably killed with a .22 caliber pistol shot to the right ear. There are two possible explanations: it was put down as an ailing senile captive, or given a *coup'd grace* after being dropped by a hunter.

There are further indications of euthanasia. According to DiMaio, whenever a pistol is placed against, or even very near to the skull, the gases, as well as the bullet, enter the brain cavity and expand the skull by hydraulic pressure. The skull may even be blown apart. There appears to be evidence of expansion and blow out.

The bullet did not appear to have completely penetrated the skull because no opposite exit wound could be found. DiMaio says bullets often travel around in curved paths inside the cranium and may exit through an unexpected site. If the bullet is all lead, it could have disintegrated. I have observed this in the skulls of a pig and a cow.

Goldman (1946) includes two photographs of an Argentinean female cougar skull that was obviously dispatched with a shot to the head. The skull is shown on pages 296 (dorsum) and 299 (ventrum). The dorsal photo shows a bullet hole that entered the right side of the head above the right eye just posterior to the orbital process. The hole is obviously a depression crater. Posterior to the entrance hole is a long protrusion fracture that parallels the sagittal crest starting from the hole and extending to the occiput. This fracture was caused by hydraulic pressure expanding outwards inside the cranium. The ventral view of the skull shows absolutely no exit hole. The only explanation for this is that the bullet disintegrated inside the cranium. According to DiMaio, this is not unusual in head shots.

In the case of the Quabbin cat, the presumed bullet entered in the temporal bone just behind its zygomatic process because this hole is a depression crater. Immediately posterior to this hole is a fracture that roughly follows the parietal-temporal suture and extends almost to the lambdoidal crest of the occiput. This long fracture is a protrusion fracture because the force that caused it came from within. The p-t suture was compromised by its proximity to the entrance hole.

The gases exert hydraulic pressure on the walls of the cranium and blow out occurs in weak areas where the walls are thin. A second hole occurs in such an area. It is in the frontal bone area forming the orbit just anterior to the entrance hole. This hole was formed by extrusion of material. It may be where the bullet exited or caused by hydraulic blow out. According to DiMaio, the latter hypothesis frequently causes exophthalmos, (protrusion of the eye) in suicides involving contact gunshot wounds to the head. Most likely, the cat's right eye protruded outwards after being shot. I cannot explain with certainty if and where the bullet exited.

**CONCLUSION:** The Quabbin cougar skull is from an old individual. The extent of suture fusion was the most extensive the writer has ever seen. The demise of the cat was very likely from a gunshot wound. This may or may not indicate captivity, but definitely indicates human intervention

The circumstances of the skull's origin and its introduction to scientific scrutiny are suspicious. The presence of bear ribs at the site is a good indication that the site might be an animal carcass dump. It is my conclusion that the Quabbin Skull should not be considered as definite evidence of any free ranging native northeastern cougar.

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**Alisha Sutton**, alias “ecogal,” is researching and writing a document on the “human dimensions” of cougars—that is, people’s perceptions of cougars and their tolerance. She’s a recent graduate of the University of Maryland and is involved in several other environmental projects this summer. Thanks, Alisa!

## THIRD MIDWESTERN-EASTERN PUMA CONFERENCE



Peterborough, Ontario, Canada  
May 23 -26, 2007

In less than a year, the Ontario Puma Foundation (OPF) will be hosting the 3<sup>rd</sup> Midwest-Eastern Puma Conference at Trent University in Peterborough, Ontario. They now are soliciting talks and posters. The deadline for submissions is December 31, 2006. More than 150 participants are expected.

Broad topics will include regional updates (sightings, evidence and analysis); behavior, reproduction and ecology; territory, population and range studies; habitat conservation – wildlife corridors; wildlife conservation and education; workshops; and a field trip to Jungle Cat World.

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