

Excerpt from the Cougar Rewilding Foundation's June 2012 newsletter



Cougar Mortalities in Central North America and the Evidence Against Recolonization East of the Prairie Colonies

By Helen McGinnis

Cougars were wiped out from the central regions of the United States and Canada by the 1920s. However, by the 1960s attitudes toward predators had begun to shift, state-sponsored eradication programs were phased out, and most western states began protecting their remaining cougars.

These states started to manage cougars as big game in the 1970s, with the exception of Texas, where cougars are still treated as vermin. In the 1990s, California voter referendum banned all hunting of cougars.

Since the early 1990s, cougars have re-established five breeding colonies in islands of forested prairie habitat east of the Rocky Mountains. Isolated, dispersing individuals from these prairie colonies have been documented in increasing numbers across the eastern plains and deep into the United States' Midwest. One Black Hills male traveled famously to Connecticut. Biologists, journalists and Internet hunting and wildlife forums, especially in the wake of the Connecticut news, have widely predicted that cougars will soon recolonize the Central Mississippi Basin, and even the Eastern United States.

Is this optimism justified? Will breeding colonies soon appear in the Minnesota Boundary Waters or the Ozarks? Can cougars rewild the East in our lifetime, just as they've reclaimed the edge of every metropolitan area from Rapid City, South Dakota west to Seattle and south to San Diego? Let's look at the evidence.

Confirmations: Less Than Meets the Eye

Despite a couple hundred confirmations east of the prairie colonies, evidence of cougars – including random remote camera photographs, tracks, scats, hair, and characteristic kills – are not reliable indicators of the number of cougars represented. A single cougar may leave dozens of documented signs. The Milford, Connecticut cat was tracked by Wisconsin DNR for three weeks and left DNA evidence across four states.

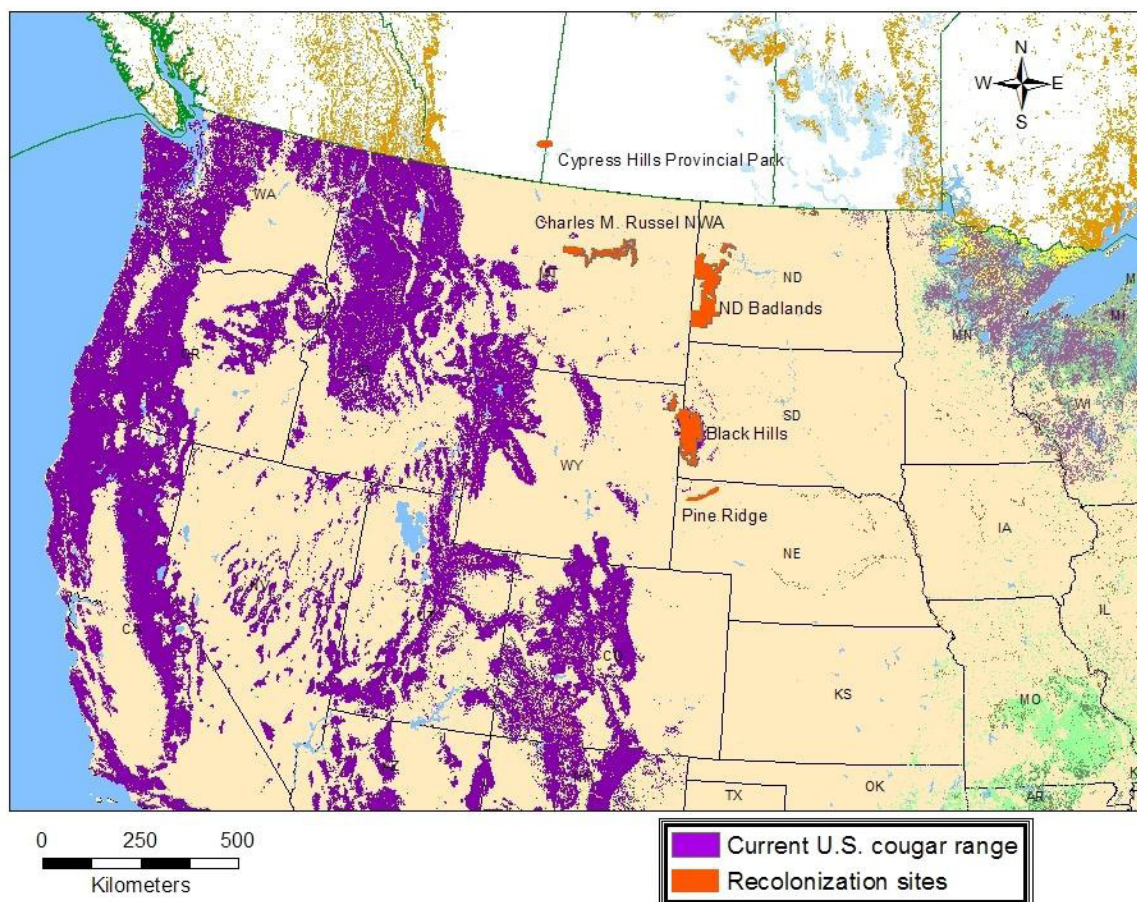
Evidence can only be ascribed to specific individuals by DNA analysis and by peculiarities, such as the individual wearing a radio collar and ear tag who tripped a series of wildlife cameras across Wisconsin and Michigan's Upper Peninsula in the fall of 2011. For this analysis, to ensure that we were dealing with the record of individuals, we attempt to determine the potential for recolonization by documenting only mortalities and captures of cougars outside the Prairie Colonies.

Our data was extracted from files maintained by the Cougar Rewilding Foundation, including newspaper articles and documentation supplied by state wildlife agencies. In almost every case, the sex of the dead cougar was determined, a necessary indicator of breeding potential as we traced the records sifting the history of recolonization east of the Rockies.

Recolonization Begins

In response to the new management policies of the 1960s, western states were motivated to increase cougar populations. Cats began to return to areas where they had previously been eliminated, including developing metropolitan areas. By the late 1970s, cougars began to disperse from and breed in island habitats east of the Rockies. To date, there are five recolonized areas within 160 miles of the Eastern Front.

Recolonized sites outside of current cougar range



The five areas appear from North to South:

- The Cypress Hills Interprovincial Park in Alberta and Saskatchewan, thirty-five miles north of the Montana border. Cougars began to reappear in the park in the late 1990s. Now they are also breeding in the Center Block east of the main portion of the park. Cougar hunting is not permitted in the park.

- Charles M. Russell National Wildlife Refuge in eastern Montana. The Refuge is an extension of riparian habitat in the Great Plains. Recolonization may have begun in the late 1990s. Breeding has not been documented in the easternmost section. Cougar hunting is currently not permitted in the Refuge, but its feasibility is under study.
- The Badlands and Missouri Breaks in North Dakota. This area includes Mountain Lion Hunting Zone 1, established by the North Dakota Game and Fish Department, as well as the Fort Berthold Indian Reservation, which has a separate hunting season. A few cougars may have inhabited the Badlands for decades. Confirmations date to 1990. A hunting season was begun in 2005.
- The Black Hills and adjacent Bear Lodge Mountains in South Dakota and Wyoming were the first to be recolonized and have been the principle source of dispersers documented in the central United States. Listed as a state threatened species in South Dakota in 1978, cougars were well established by the 1990s. The first kitten was documented in October 1999. They were removed from the threatened list in 2003, and the first hunting season was begun in the autumn of 2005.
- The Pine Ridge of northwestern Nebraska. It is likely that the Pine Ridge was recolonized by immigrants from the Black Hills. The first kitten was documented in 2007, but confirmations date back to 1991, when a female weighing seventy-nine pounds was killed. A study of the DNA gathered by cougar scat-sniffing dogs determined a minimum of eight males and five females lived in the Pine Ridge in 2011. The Nebraska legislature has already approved a hunt for the Pine Ridge.

The Pioneers

Young, subadult cougars (between 18 – 24 months) who leave their birthplaces in search of mates and available habitat are commonly the dispersing individuals that will expand cougar range and recolonize former habitats. Young males dominate the dispersal record east of the Prairie Colonies. In the twelve years covering our analysis, only a single female has been documented in a state or province east of prairie habitat – a likely former captive shot in a Minneapolis suburb in 2002.

This dispersal disparity is a result of the tendency for subadult females to stay closer to their natal range, dispersing shorter distances than subadult males. In a ten-year study of the cougars of the San Andres range of southern New Mexico, the average female dispersal was thirteen miles; the longest was forty-eight miles. The longest documented female dispersal was recorded in 2005-2006. A female estimated to be eighteen months old was outfitted with a GPS collar on February 9, 2005 in the Oquirrh Mountains of north-central Utah. A year later, on February 10, 2006 she was killed by a hunter in northwestern Colorado. In a straight line, she'd moved 221 miles, but data downloaded from her collar showed she traveled at least 833 miles. Whether a female would settle in to forest habitat east of the prairies without cougars, or if she would continue moving to find a mate, is unknown.

Forced out by their fathers or dominant, immigrant toms, research indicates that all subadult males disperse from their birthplaces. In the San Andres study mentioned above, males dispersed an average of seventy-two miles before establishing their own territory; the maximum dispersal distance was 134 miles. Population expansion occurs with young males dispersing into new territories, seeking females along the fringe or just beyond a breeding population. These pioneers may temporarily linger in available habitat, but if a potential mate is not present, the impetus to breed urges them on.

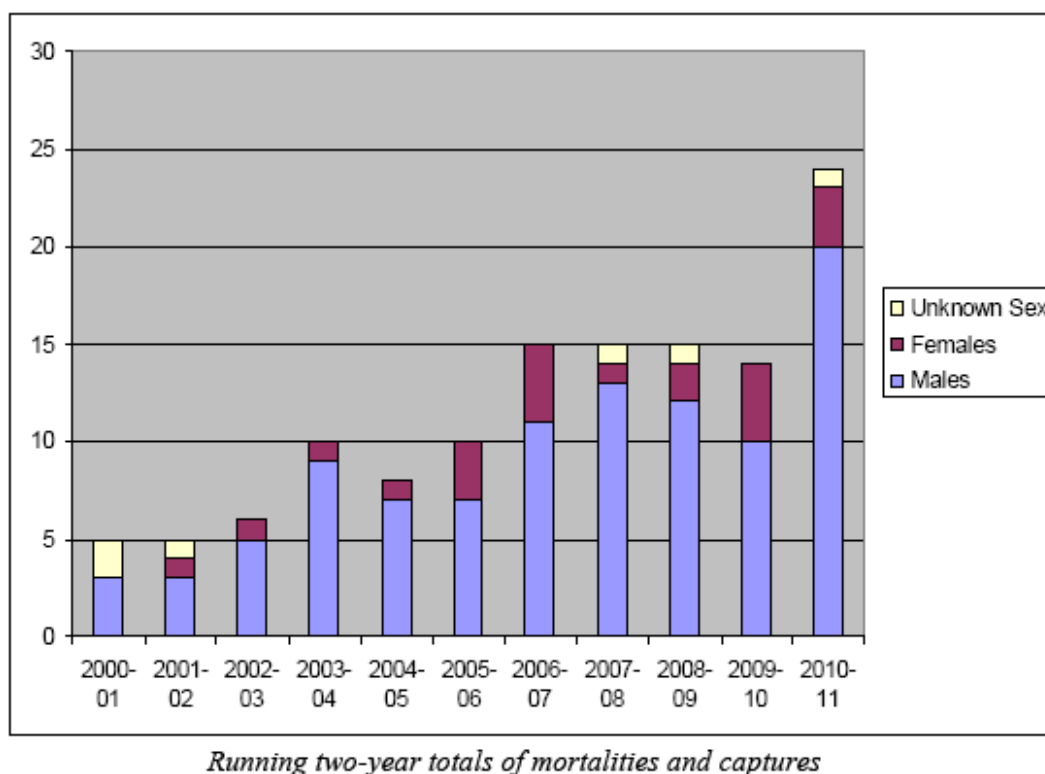
Subadult males born in the Black Hills and the Badlands have dispersed record distances – *an indication of absent females across the landscapes they are traversing*. The longest recorded dispersal, perhaps for any single land mammal ever documented, was set by the individual killed on a highway in Milford, Connecticut on June 11, 2011. DNA analysis found that he was born in the Black Hills. In a straight line, he traveled 1500 miles, but the actual distance was certainly more than 2000 miles. Dental analysis

revealed he was three years old. Had he found a female anywhere along his journey, he would have undoubtedly stopped to mate, settling in to establish and defend his territory.

What do mortality and capture records tell us about prairie dispersal and the potential for recolonization east of the source colonies? We mapped the locations of disperser mortalities and captures and analyzed the trends for three time-periods from which distinct patterns emerged: 2000-2005, 2006-2010, and 2011.

Mortality tabulation and mapping

Our survey has documented seventy-four mortalities and two captures between 2000 and 2011: fifty-nine* were males, twelve were females and four were unknown. Shooting was the most common form of death (50), including legal kills by hunters, followed by vehicle collisions (12), snaring/trapping (3), two were shot by archers, two were hit by trains and two were captured without being released. In three cases, the cause of death was undetermined. On average, the number of mortalities increased between 2000 and 2011, with a record number in 2011.

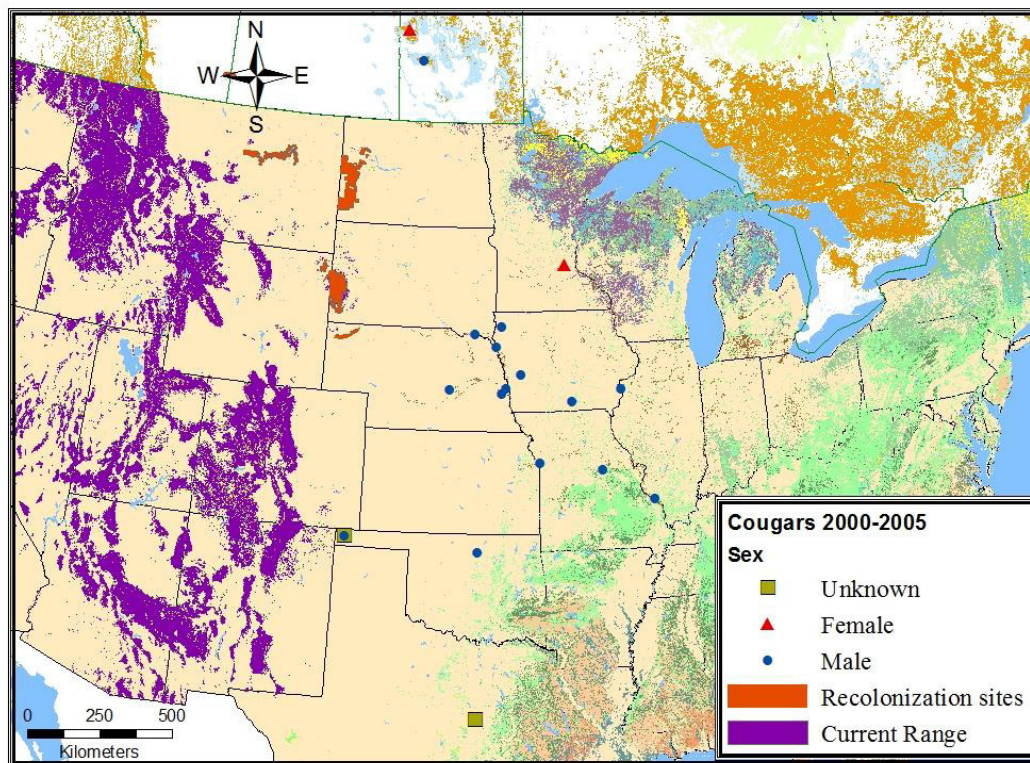


Contrasts in Mortality Distribution

Between 2000 and 2005, mortalities were generally far to the southeast of the Black Hills, with few dispersers being killed near the recolonized areas. The two cougars killed in the Oklahoma Panhandle, and the individual killed in eastern Texas likely came from the southern Rockies and southern Texas, respectively.

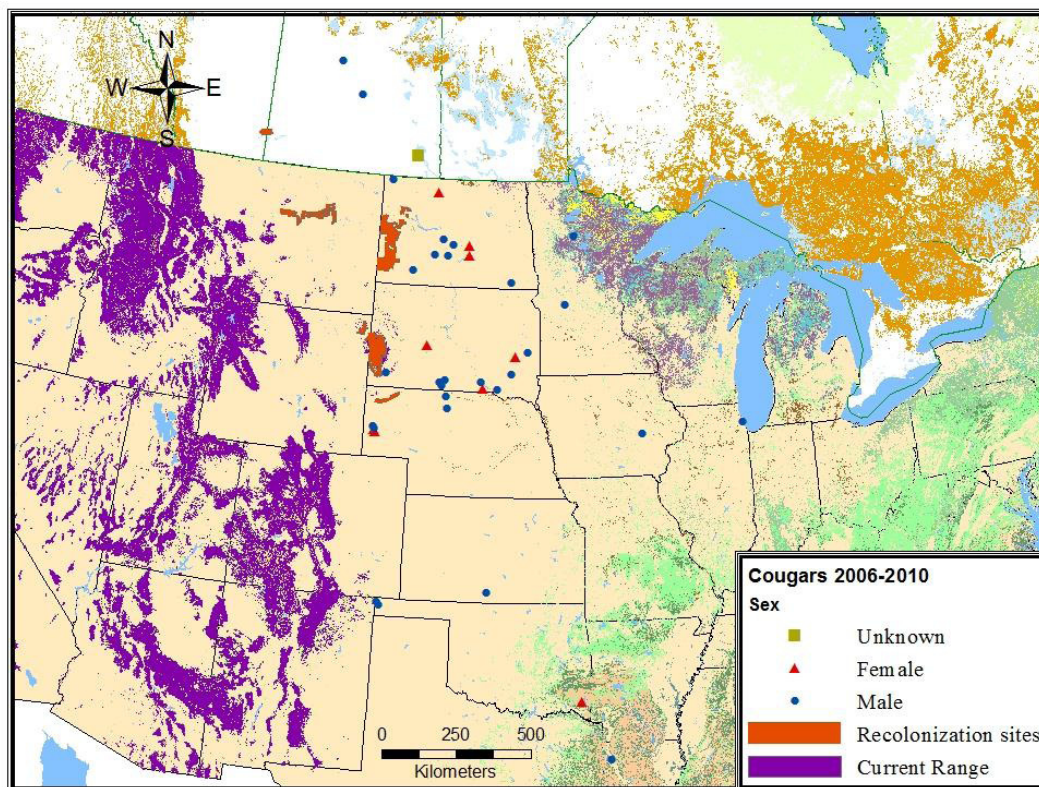
* Conflicting data suggests there may only have been fifty-eight males.

Cougar mortalities and captures outside of existing range: 2000-2005



In 2006-2010, most of the mortalities were near the breeding colonies in the Black Hills and the Badlands.

Cougar mortalities and captures outside of existing range: 2006-2010



The dramatic contrast in the range of mortalities between 2000-05 and 2006-10 coincides with the inception of the Dakota hunting seasons in the fall of 2005. Before 2005, cougars crossing the Prairie States were uncommon and received little public attention. As noted previously, between 1978 and 2003, the species had been protected as a State Threatened Species in South Dakota. Accordingly, the initiation of a South Dakota cougar hunting season was controversial. In North Dakota, cougars had been classified as furbearers, with a closed season in 1991; the implementation of a hunting season in 2005 was less conflicted. However, the attendant publicity marked by the start of the new hunting seasons served to increase public awareness of cougar dispersal.

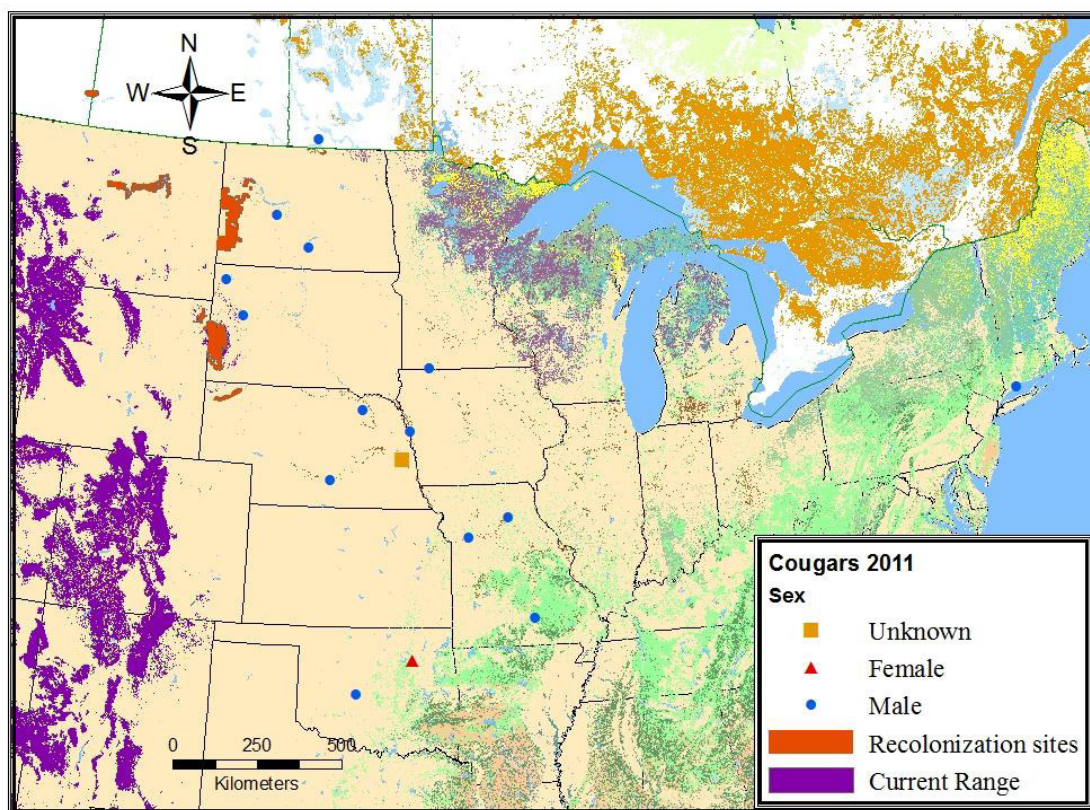
Unlimited quotas on cougars in the Dakotas outside the breeding colonies were authorized with the start of the 2006 hunting seasons. The legalization of hunting east of the source populations increased the chances that dispersers would be killed and reported to the state wildlife agencies. Laws in South Dakota were changed in 2008, enabling any landowner or lessee possessing a \$15.00 license to shoot a cougar at any time.

In 2011, the mortalities were widely scattered, including three mortalities in Missouri, which hadn't recorded a death or a capture since 2003. (*see map below*)

The 2011 spike in disperser mortalities may well reflect the most robust breeding season to date in the Black Hills, 2009, the final season before hunting quotas were raised dramatically in 2010, and again in 2011. In late May, we also learned that three of the cats confirmed in Missouri last year arrived from three different states.

Did dispersal in 2011 reflect a source-density that eclipsed the mortality pattern of the previous five years? Can it be sustained in 2012, or will dispersal be limited by the rising take of females in the Badlands and the Black Hills? So far, a mortality east of the source colonies this year has yet to be recorded (there has been one capture); last year by June there were six.

Cougar mortalities and captures outside of existing range: 2011



No Females, No Range Expansion

Between 2000 and 2011, females accounted for just twelve of the seventy-four mortalities/captures outside the breeding colonies. Only two left the state of their births. As mentioned above, the lone female documented in the Central Mississippi Basin since 2000 was killed in Bloomington, Minnesota in 2002; her origin remains uncertain. In 2011, only one of the sixteen documented dispersers was female, who was captured in Tulsa, Oklahoma on April 23rd. Although DNA results from two different laboratories indicated her ancestral origins in the Black Hills, and her behavior was typical of a wild cat, she was retained in the Tulsa Zoo and transferred to a zoo in Independence, Kansas.

Nipped in the Bud

Accurate estimates of the ages are not available for all dispersers, but necropsies have identified most as subadults. At age three, the Milford, Connecticut male may have been the oldest. Most confirmed dispersers seemingly disappear or become mortalities. Many are likely poached, their bodies concealed and never reported under the vigilante mantra, “Shoot, shovel, and shut up.” Adrian Wydeven of the Wisconsin DNR has suggested that the Spooner cougar (treed three times in March 2009) and the Park Falls cougar (reported by a bus driver in February 2010 and documented by DNA analysis of blood spots) “did not remain on the landscape for long after their observations.” The absence of adult mortalities east of the breeding colonies suggests that subadult dispersers are not roaming long enough to become breeders or documented adult casualties.

Increasingly, game agencies are also failing to prosecute illegally killed cougars in states where they are protected, endorsing “self-defense” claims where no threat but the cat’s presence is evident. This failure to prosecute the killing of a protected species – the news of which receives wide publicity – provides tacit sanction for vigilantism. Vigilantism is receiving another whiff of credibility through a number of cougar-killing bills under consideration by state legislatures.

State Management Goals: The War is On

Missouri.

Bill SB738, which would have allowed for the killing of a cougar at any time under any circumstance, died in committee on May 18. Craig Lanham’s single-handed effort to publicize and stop this legislation is an inspiring piece of advocacy. Missouri does not have a breeding population, but it has excellent cougar habitat in the southern part of the state. After four years without a confirmation of any kind, three subadult males were shot in 2011. On a brighter note, officials of the Missouri Department of Conservation opted to release a young male caught in a bobcat trap in January 2012.

Nebraska.

The Nebraska State Legislature passed LB928 on April 12 allowing for the future hunting of cougars. A potential source colony, only twenty adults reside in the state’s Pine Ridge area. The Nebraska Game and Parks Commission did not oppose the bill because they have stated that they will not open a hunting season until the Commission determines that one is advisable. The recent reintroduction of bighorn sheep to the Pine Ridge for the primary purpose of trophy hunting could threaten the continued existence of its cougars. Cougars prey on bighorns. A documented kill of a bighorn could well precipitate hunter demands – as seen in so many other states – for regulation by hunting of Nebraska’s cougars.

Cypress Hills and Charles M. Russell NWR.

There is no published information regarding dispersers from these areas. A cougar hunting feasibility study is under way in the Charles Russell.

North Dakota.

The North Dakota management goal is to contain their cougars to Zone 1 in the southwestern region of the state, with unlimited quotas on the prairie east of the source colony. Fourteen were killed in Zone 1 - *twelve of them females* - in the fall 2011 season. In addition, several are legally taken each year in the contiguous Fort Berthold Indian Reservation.

Black Hills.

By far, the most important source for dispersers has been the Black Hills National Forest straddling the Wyoming and South Dakota border.

Cougars are not only being reduced in the Wyoming portion of the Black Hills and in the adjacent Bear Lodge Mountains (Mountain Lion Hunting Areas 1 and 30), but a new district with an unlimited kill-zone, Area 32, has recently been proposed. Since 2005, the quota in Areas 1 & 30 has risen from five to forty, after the Wyoming section of the Hills was designated a population sink, where mortalities are projected to exceed recruitment by birth and immigration.

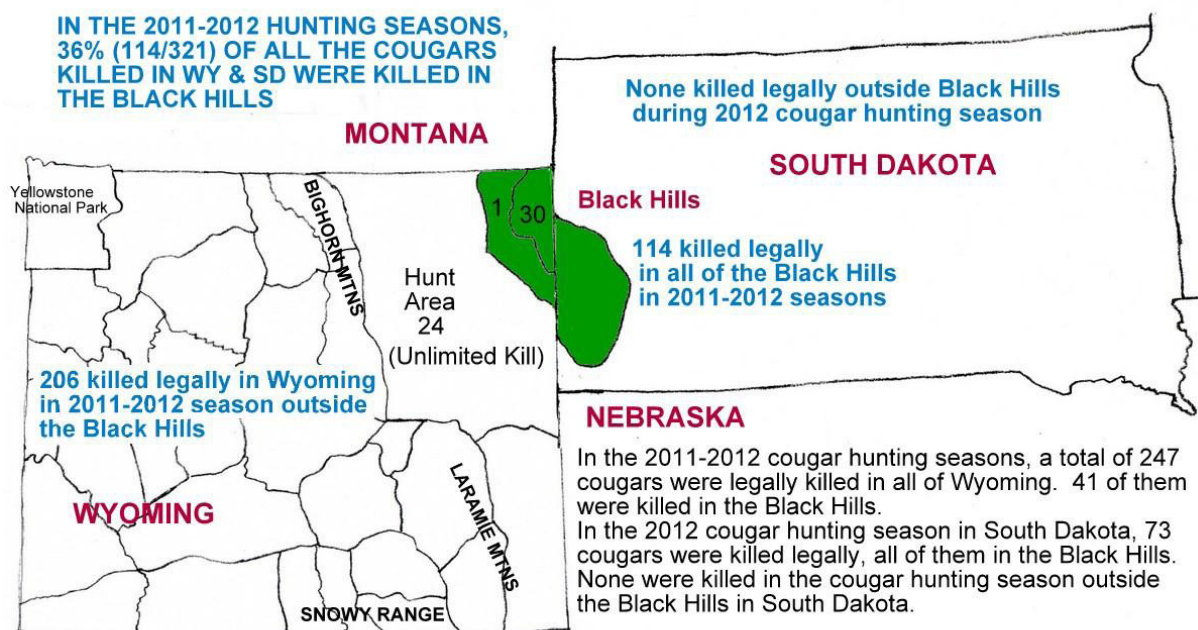
According to Wyoming Game and Fish, the sink was designed to reduce livestock depredation complaints and compensation payouts. Figures are unavailable for depredation incidents from 2000–2007, but they are inconsequential for 2008 (1), 2009 (2), 2010 (3), 2011 (9, attributed to one individual who was killed). These numbers are far from adequate to justify a sink, where compensation to livestock owners for losses to cougars is minor. Lobbying to increase hunting opportunities both on private property and for commercial white-tail hunting (white-tailed deer are rare in Wyoming) – with no research to support cougar predation limiting white-tail numbers, except in conjunction with severe winters – appears to be behind the Area 32 proposal. The 2011 cougar season began in Wyoming on September 1st. The quota of forty in Areas 1 & 30 was filled by December; forty-one were actually killed.

In South Dakota, public attitude surveys conducted by South Dakota Game, Fish and Parks found that a majority of both South Dakota citizens and Black Hills' residents recommended no change to the Black Hills cougar population. Public comments from across the United States ran eight-to-one against South Dakota's 2010-2015 cougar management plan to reduce cougar numbers in the Black Hills. There was no peer review of the study on which the plan was based. Significant errors in the data estimating the Black Hills cougar population were found by independent cougar biologists reviewing the South Dakota study – funded in part by federal research grants – that informed the 2010-2015 management plan.

Despite the state opinion survey results and national public comments, the doctored data (the adult population estimate of 130 was nearly doubled to 250 by including kittens and yearlings) and federal research funding, and citing *unsupported* claims of cougar impacts on deer and elk numbers, the South Dakota Game Commission decided to significantly reduce the cougar population in the South Dakota portion of the Black Hills National Forest. The management goal to reduce a federal wildlife population funded by all United States' taxpayers occurred solely in response to *local* hunter lobbying.

Since sport hunting of cougars began in the fall of 2005, quotas have risen steadily from twenty-five in 2005 and 2006 to fifty in 2011. Last year, over-riding even their biologists' recommendations, the commissioners raised the quota to seventy, or fifty females, based on disputed claims of elk-calf depredations. Seventy-three cougars were taken during the South Dakota 2012 season. The final three kills became controversial when a state biologist failed to immediately report his kill, the seventieth. The last cat taken was a six-eight month-old female kitten.

In total, hunters killed 113 cougars in the Black Hills National Forest/Bear Lodge during the 2011-2012 seasons, nearly a third under the breeding age of two. More than 200 cougars have been killed in the colony during the past two hunting seasons, perhaps the single highest percentage taken from a breeding population in any western region during a two-year period in the modern era of cougar management.



Two South Dakota State University Phd dissertations by Brian Jansen and Dan Thompson (now a Wyoming Game & Fish biologist) from research conducted between 2001- 2009 determined that all breeding males in the Black Hills were immigrants, many coming from the Bighorns, Laramie and Snowy Ranges – areas with high hunting quotas. Males dispersing from these ranges must cross the high arid, unlimited kill-zone prairie of Hunting Area 24 to reach the Black Hills. With little exception, subadult males born in the Black Hills left – a pattern found in similar island populations – even after hunting seasons began to remove dominant toms. Seven radio-collared subadult males went into the Wyoming Black Hills’ sink; none of them survived.

Both Jansen and Thompson concluded that if immigrant toms are unable to reach the Black Hills – open hunting seasons virtually ring the entire national forest – and if all subadult males leave, that the colony’s viability is in jeopardy. At the very least, inbreeding may threaten the population.

Conclusion: Bitter Harvest

From data compiled since 2000, cougar dispersal east from the western prairies produced no kittens and only a single female of uncertain origin, let alone a new breeding colony, anywhere in the Central Mississippi Basin or southern, central Canada. There is no evidence of a breeding cougar colony in Central North America. If breeding has not already been established in the central United States and Canada during a period of relatively unrestrained dispersal, the recent development of hunter-bought, agency-directed cougar quotas in the primary breeding colonies are likely to further limit any chance for natural recolonization eastward.

It took twenty years of dispersal from the Black Hills to establish a breeding colony 100 miles to the southeast in the Nebraska Pine Ridge. At that rate, under good conditions, breeding may not occur in Minnesota before 2050, let alone further east. With a deliberate goal of dramatically reducing females in the Black Hills, and with a five-to-one ratio of females to males taken during 2011 in the Badlands, conditions for cougar dispersal and recolonization now are far from ideal.

2011 may well be the end-game for this dispersal era. As the easternmost source populations are systematically gutted in the Badlands and the Black Hills, with a hunt looming in the Pine Ridge, and

with virtual open hunting seasons encircling the source colonies – further suppressing both male recruitment and female dispersal – the potential for natural cougar recolonization of Central North America in our lifetime becomes bleak.

The cougar's astonishing resiliency and potential to surprise both advocates and antagonists doesn't rule out that a female will defy the odds, slip into the Boundary Waters or the Ozarks, and consummate another wild dream. Thirty years ago, no one could have imagined mountain lions lounging on Southern California lawns, urban residents and law enforcement officers friendly enough now with the mythic ghost cat to simply shoo them away. But we can't afford to leave such a dream to idle chance.

Cougar management in the Black Hills National Forest is a profound violation of the American public trust, reinforcing the corruption and senescence of game management to the exclusion of democratic principle and ecosystem studies. And it doesn't stop at the Black Hills. From Washington State to New Mexico, state game agencies are grossly over-estimating cougar censuses, state legislators are introducing one cougar killing bill after another, and ungulate and livestock-bought game commissions are raising – sometimes doubling – cougar hunting quotas. Like the state wolf quotas set in the Northern Rockies after federal de-listing, this isn't responsible game management; it's a war on predators, a war in the Badlands and the Black Hills designed to eliminate *any* potential for cougar dispersal eastward, if not virtual extermination of the cats in the Black Hills.

After forty years of North American cougar recovery – one of the great predator restoration stories in the world – sound predator management supported by citizen majority opinion is being crushed by minority special interests whose license fees and gear taxes provide the brunt of game agency funding. In Part II of this discussion, we will argue for a fundamental reform of the North American Wildlife Conservation Model and the need for a National Cougar Recovery Plan. Without them, hunting and ranching interests and the state game agencies that do their bidding will continue to dismantle predator-dependent ecosystems echoing pioneer-era fantasies of dominion and extermination; not 21st century cougar research.

John Laundré, Christopher Spatz and Jay Tischendorf contributed to this article.

Mortality graph and Kill Quota map by Helen McGinnis; Recolonization & mortality maps 2000-2011 by John Laundré

A special thank you to Helen McGinnis and the CRF for granting the Mountain Lion Foundation permission to repost this article. For more information about the Cougar Rewilding Foundation, visit: www.easterncougar.org