

Living with Lions

Does sport hunting mountain lions reduce attacks on people and livestock?

Mountain Lion Foundation

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By Chris Papouchis

Executive Summary

A growing number of attacks on humans and domestic animals in the West by mountain lions, also known as cougars and pumas, has garnered significant media coverage and raised public concern across the nation. Consequently, finding effective conflict-reduction strategies has become a priority for wildlife managers and conservation scientists.

Sport hunting of mountain lions, legal in ten western U.S. states and two Canadian Provinces, has been promoted by some wildlife agencies and hunting groups as a way to reduce conflicts involving mountain lions and people, including attacks on humans and livestock.

At the same time, as leading mountain lion scientists have pointed out, there is no evidence that sport hunting actually reduces mountain lion-human conflicts (Cougar Management Guidelines Working Group 2005).

Resolving this apparent contradiction in perspectives is important because, like other big cats around the world, mountain lions are coming under increasing pressure from human activity.

In 2002, the World Conservation Union (IUCN) cautioned that because of "a declining [population] trend due to persecution and degradation of its habitat and prey base" mountain lions are now considered to be Near Threatened, "and may possibly qualify as Vulnerable if these trends persist, or if better information on its status were available" (Cat Specialist Group 2002).



"[V]irtually all the world's big cats - tigers, cheetahs, snow leopards, jaguars and, to a lesser degree, cougars - are in trouble. [for] reasons that have to do with the very nature of being a top cat in a world dominated by the top primate."

TIME, August 23, 2004

Sport hunting is the primary form of persecution of mountain lions in the West, and the leading cause of mountain lion mortalities in states where it is permitted (Logan and Sweanor 2001).

In recent years, mountain lion populations have declined in at least four states (Idaho, Montana, Utah and Washington) apparently due to intensive sport hunting and other predator control actions (R. DeSimone, MFWP, personal communication; Utah Division of Wildlife Resources 2005; Lambert et al. 2006).

If sport hunting is in fact contributing to mountain lion population declines but still not increasing public safety or reducing attacks on livestock, then mountain lion management strategies must be reconsidered.

The Mountain Lion Foundation initiated this study to test the claim that sport hunting reduces attacks on humans and predation on livestock.

Background

Since the early 1970s, mountain lions have been classified as a game animal and subject to regulated hunting seasons in the western U.S. states of Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. Mountain lions are also sport hunted in the Canadian provinces of Alberta and British Columbia.

In the U.S. alone, over the past 10 years more than 30,000 mountain lions have been killed by sport hunters, according to agency records. This is an increase of more than 400 percent since the 1970s, and has driven up the total number of mountain lions killed to levels unprecedented in the past century, including when mountain lions were hunted for bounties (Figure 1).

"We're not just afraid of predators. We're transfixed by them, prone to weaving stories and fables and chatter on endlessly about them, because a fascination creates preparedness, and preparedness, survival"

- E.O. Wilson

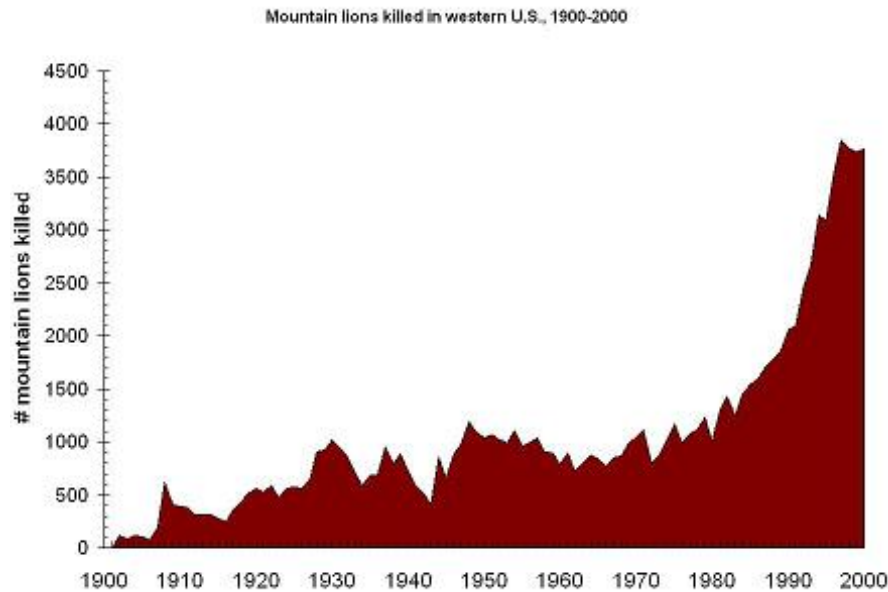


Figure 1. Mountain lions killed in western U.S., 1900-2000. Source: Torres et al (2004)

The rapid rise in sport hunting kills has been precipitated by increased interest in mountain lions as a trophy game animal and by concerns about mountain lion attacks on humans and predation on pets, livestock, and other big game species desired by human hunters, such as deer, elk and bighorn sheep.

Yet, according to the recently published *Cougar Management Guidelines*, there is no scientific support for the notion that sport hunting of mountain lions is an effective conflict reduction strategy (CMGWG 2005). Specifically, it states:

- "Sport hunting is occasionally proposed as a tool to reduce the risk that cougars will attack humans. There is no scientific evidence that sport hunting achieves this goal. In rare cases where a cougar exhibits dangerous behavior and needs to be removed, this job is best done by a professional to expeditiously track and kill the individual cougar, rather than via sport hunting."
- "Short-term, non-selective cougar population reduction [as occurs via sport hunting] has not been demonstrated to reduce depredation" on livestock or other domestic animals."

Regardless, the perception that sport hunting is a scientifically-based practice that provides relief from mountain lion-human conflicts remains widespread, and has been used by some agencies to garner public support for this activity.

For example, the Oregon Department of Fish and Wildlife (2005) cited concerns about mountain lion-human conflicts to justify a highly controversial plan to kill thousands of mountain lions in that state over the next few years via sport hunting and other means.

In addition, the South Dakota Game, Fish and Parks (2005) offered as the primary justification for that state's first-ever sport hunting season on mountain lions that it "may be a more effective solution [than removal of individual lions] for dealing with problems caused by mountain lions."

Methodology

To test the claim that sport hunting reduces conflicts, we looked to California, the only western state with viable mountain lion populations that does not allow sport hunting. Mountain lions have not been sport



hunted in California since 1971, first as the result of a legislative moratorium and then as the result of a 1990 citizen sponsored ballot initiative which made the ban permanent.

Consequently, for 34 years California has served as a living laboratory to study the relationship between humans and mountain lions in the absence of sport hunting. It also presents an opportunity to test whether sport hunting has been an effective conflict-reduction strategy in states where it is allowed.

Specifically, we compared states that allow sport hunting of mountain lions to California with regard to the rate of mountain lion attacks on humans and on livestock, namely domestic sheep and cattle.

We tested two assumptions that should prove true if sport hunting has been an effective conflict-reduction strategy:

- Attacks on humans should be consistently less frequent in states that allow sport hunting of mountain lions than in California relative to: 1) the size of their human population; and 2) the amount of mountain lion habitat.
- Losses of livestock should be consistently lower in states that allow sport hunting of mountain lions than in California, relative to: 1) the number of domestic sheep; and 2) the number of cattle.

Findings

With regard to mountain lion attacks on humans in the western United States and Canada from 1972 (the first year of the sport hunting ban in California) to 2005:

- Nine states and one Canadian Province, which have sport hunting of mountain lions, had a higher per capita rate of attacks on humans than did California (Figure 2).
- Two states which have sport hunting of mountain lions had a higher rate of attacks on humans per square mile of suitable mountain lion habitat than did California (Figure 3).

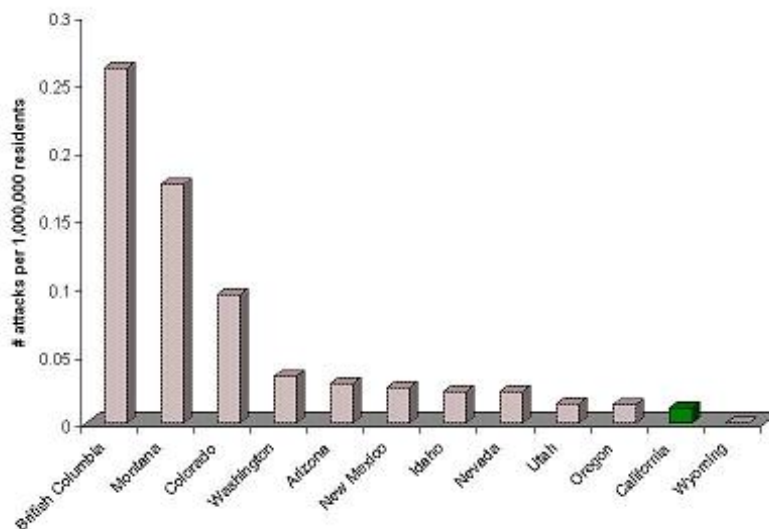


Figure 2. Average annual number of mountain lion attacks on humans per one million residents in the western U.S. and British Columbia, 1972-2005

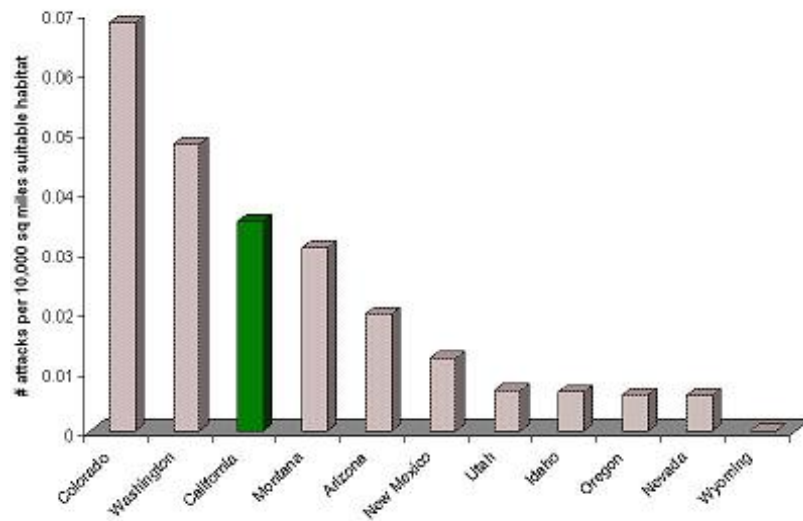


Figure 3. Average annual number of mountain lion attacks on humans per 10,000 square miles of suitable mountain lion habitat in the western U.S., 1972-2005

With regard to mountain lion predation on livestock, according to data from the U.S. Department of Agriculture's National Agricultural Statistics Service (NASS 1995, 1996, 2000, 2001, 2005):

- Six states which have sport hunting of mountain lions reported a larger percentage of domestic sheep and lambs killed by mountain lions than did California (Figure 4).
- Four states which have sport hunting of mountain lions reported a roughly equivalent or larger percentage of cattle and calves killed by mountain lions and bobcats than did California (Figure 5). [Note: NASS statistics do not distinguish between mountain lion and bobcat attacks on cattle so the actual percentage killed by mountain lions is likely smaller than presented.]

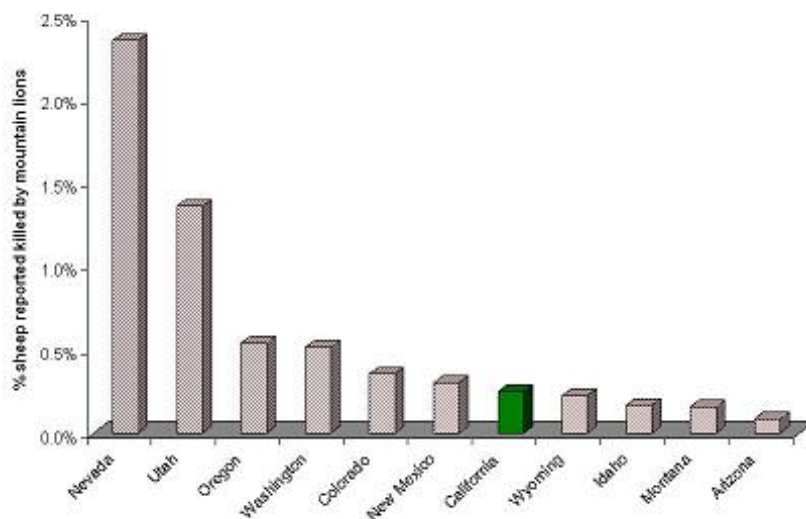


Figure 4. Percentage of domestic sheep reported killed by mountain lions Source: NASS (1995, 2000, 2005)

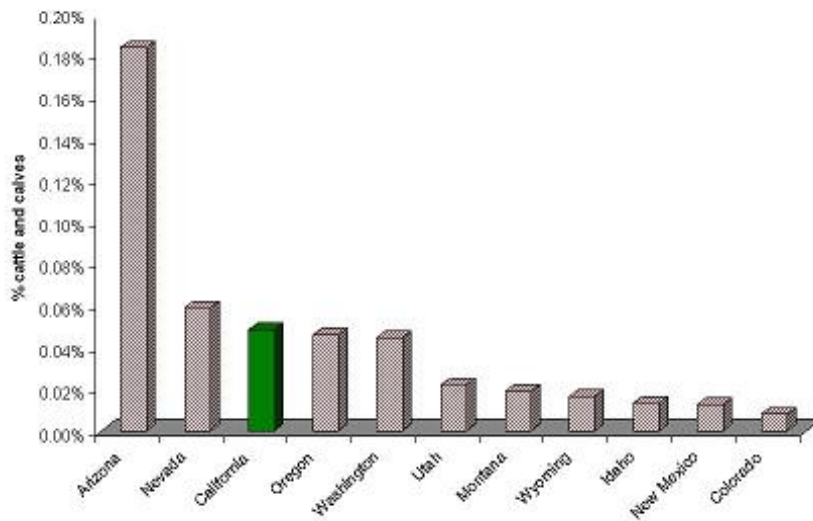


Figure 5. Percent of cattle reported killed by mountain lions and bobcats. Source: NASS (1996, 2001)

Discussion

Contrary to our assumptions, attacks on humans have not been consistently less frequent in states that allow sport hunting of mountain lions than in California relative to human population size or the extent of mountain lion habitat.

Additionally, the percentage of livestock reported killed by mountain lions have not been consistently lower in states that allow sport hunting of mountain lions than in California.

In fact, since the 1971 prohibition on sport hunting, California has had relatively fewer mountain lion attacks on humans per capita and per amount of suitable habitat than a number of states with sport hunting. Moreover, California also reported losing a smaller percentage of domestic sheep than most states with sport hunting of mountain lions.

These results do not support the claim that sport hunting reduces the incidence of mountain lion attacks on people or livestock.

Furthermore, even though it has the largest human population, the largest amount of mountain lion habitat and the most livestock of any western state, fewer mountain lions are killed by humans in California each year than in any other state.

For example, in the last decade, about 120 mountain lions were killed annually in California, primarily for preying on livestock and pets (CDFG 2006). In contrast, more than 400 mountain lions were killed annually in each of the states of Idaho, Montana, Colorado, and Utah, primarily by sport hunters (Beausoleil and Martorello 2005).

It is noteworthy that an increase in mountain lion attacks on humans in several western states during the 1990s occurred at the same time that the number of mountain lions killed by humans was reaching record levels. According to agency records, from 1990 to 1999:

- 3,255 mountain lions were reported killed by sport hunters in Colorado (10 attacks on humans)
- 5,063 mountain lions were killed in Montana (4 attacks)



- 1,710 mountain lions were killed in Washington (3 attacks)

In fact, some mountain lion experts have raised the possibility that sport hunting -- rather than decreasing the likelihood of attacks -- may actually increase the risk of attacks.

Dr. Maurice Hornocker (1992), considered by many to be the dean of mountain lion researchers, speculated that sport hunting may be exacerbating the likelihood of attacks by removing those lions that are more wary of people -- and thus quicker to climb trees when pursued -- thereby skewing the population towards those more aggressive lions that are also more likely to attack humans.

Additionally, according to Dr. Paul Beier (1991), sport hunters also tend to seek out larger and older mountain lions as trophies, which increases the proportion of younger mountain lions that are more frequently implicated in attacks than adults.

Conclusion

The findings of this study do not support the notion that people and livestock are safer in states where mountain lions are sport hunted than in states where they are not.

Indeed, the lack of evidence presents a dilemma for sport hunters and wildlife managers who promote sport hunting as a conflict-reduction strategy.

In states where it is permitted, surveys suggest that public support for sport hunting of mountain lions is based in large part on the belief that sport hunting is a scientifically-based and effective technique for addressing conflicts (e.g., Responsive Management 2002). The general public is not supportive of sport hunting as a purely recreational endeavor and is adamantly opposed to the hunting of animals merely to obtain a trophy (Kellert 1995).

In several states, citizens have voted to either regulate the methods used for sport hunting mountain lions (i.e. Oregon and Washington) or prohibit it completely (i.e. California). These voter initiatives have been criticized by some sport hunters and state agencies as being naïve, “emotion” based decisions that are not grounded in science.

Yet, according to leading mountain lion researchers Dr. Ken Logan and Linda Sweanor (2001), mountain lion “hunting management in most western states is a far cry from science.”

Moreover, California’s experience with mountain lions over the past 34 years does not support the notion that sport hunting is necessary to address conflicts.

Unless evidence is presented to support these arguments, continued assertions that sport hunting is an effective technique for reducing conflicts only serves to erode the credibility of individuals and agencies that make these claims.

Moreover, the continued emphasis on sport hunting diverts attention and resources away from strategies and techniques that are more likely to be effective in reducing conflicts between mountain lions and humans, such as appropriate land-use planning, improved animal husbandry, and comprehensive public education.

As the *Cougar Management Guidelines* state “If sport hunting is being used as a tool to meet ... objectives [other than providing recreation], agencies need to provide evidence that hunting will achieve these objectives.”



"To keep them in a world where wilderness areas are shrinking will require all the innovative strategies that conservationists can muster".

TIME, August 23, 2004

Focus: Sport Hunting and Public Safety

Mountain lion attacks on humans are undeniably viscerally and emotionally charged events. A powerful predator, mountain lions are capable of bringing down elk and deer several times their size. In extremely rare occasions, mountain lions have attacked and even killed humans. The fear of being attacked by a mountain lion or other wild animal evokes a deep primal terror, even as Americans become accustomed to news of people killed while engaging in far more dangerous but innocuous activities as:

- driving a car (43,200 fatalities in U.S. in 2005)
- walking down the street (4,674 fatalities in 2005)
- swimming in a pool (~4,000 fatalities per year)
- being attacked by a neighborhood dog (~17 fatalities per year)

As famed ecologist E.O. Wilson has noted, "We're not just afraid of predators. We're transfixed by them, prone to weaving stories and fables and chatter on endlessly about them, because a fascination creates preparedness, and preparedness, survival."

Though attacks by mountain lions on humans are extremely rare, there has been an observed increase over the past several decades. Experts on mountain lion attacks have attributed the increase to the rapid growth and expansion of human populations and loss of mountain lion habitat across the West, which has brought more people into proximity with mountain lions, as well as to an increase in mountain lion populations in some areas due to the growth and spread of deer populations (CMGWG 2005, Quigley and Herrero 2005).

Indeed, in recent years several attacks have occurred in some of the most densely populated counties of the West where there is significant development and recreation in mountain lion habitat, including California's Orange (3,606 people/mi²) and San Diego (670 people/mi²) Counties and Colorado's Boulder County (392 people/mi²). It is worth noting that the state of Wyoming (5.09

Sport hunting is occasionally proposed as a tool to reduce the risk that cougars will attack humans. There is no scientific evidence that sport hunting achieves this goal.

- Cougar Management Guidelines

people/mi²), which has the lowest human population density of any western U.S. state except Alaska, had no confirmed attacks until 2006.

Some sport hunting advocates and state wildlife agencies have claimed that attacks can be reduced by sport hunting of mountain lions. Yet, as 13 of the world's leading mountain lion experts concluded in the *Cougar Management Guidelines*:

"Sport hunting is occasionally proposed as a tool to reduce the risk that cougars will attack humans. There is no scientific evidence that sport hunting achieves this goal. In rare cases where a cougar exhibits dangerous behavior and needs to be removed, this job is best done by a professional to expeditiously track and kill the individual cougar, rather than via sport hunting.

Assuming that mortality from sport hunting is at least partially additive to other sources of mortality, hunting must reduce cougar density. Proponents of hunting use this reasoning to argue that sport hunting—by reducing density—must also reduce risk of attacks on humans. However, hunting may shift cougar population structure towards young animals, which are more likely than adult cougars to attack humans ... Furthermore, the public may not support efforts to reduce regional cougar populations in a questionable effort to reduce a miniscule risk.

Arguments for decreasing cougar density often focus on scenarios of cougars lurking near human homes and settlements. Because few cougars are more than 1 home range width from some sort of human settlement, this argument may be nothing more than a rhetorical device to promote regional hunting. Sport hunting of cougars near the densest human settlements is difficult because houndsmen are reluctant to hunt these areas (due to the risk that dogs will be killed on paved roads), and private landowners or local laws often prohibit hunting. Furthermore, although cougar attacks do occur close to human settlements, they do not seem to be concentrated there."

The assertion that sport hunting is a necessary and effective strategy for reducing mountain lion attacks on people remains widespread in the mainstream media and in the popular literature (e.g. Etling 2001, Baron 2003). While some state wildlife agencies, such as in California and Wyoming, state that sport hunting cannot be expected to increase public safety, other state agencies have claimed the opposite, apparently to garner public support for sport hunting.

For example, in 2005 the South Dakota Game, Fish and Parks offered as the primary justification for the states first-ever sport hunting season on mountain lions that it "may be a more effective solution [than removal of individual lions] for dealing with problems caused by mountain lions."

We reasoned, for the purposes of this study, that if sport hunting reduced the risk of attacks on humans, then states where mountain lions are sport hunted should consistently have fewer attacks than states where they are not hunted, relative to the size of their human population and amount of suitable mountain lion habitat.

To test this assumption, the Mountain Lion Foundation tabulated data on confirmed mountain lion attacks in North America from 1972 (the first year without a sport hunt in California) to 2005. For attacks up to 1990, MLF used attacks reported by Dr. Paul Beier (1991). Per Beier, an attack was defined "as an incident in which the [mountain lion] bit, clawed, or knocked down a human" and excluded incidents involving captive mountain lions and "cases in which a person...deliberately approached or harassed" a wild mountain lion. For attacks from 1991 to 2005 MLF consulted state wildlife agencies and other sources that documented attacks (Chester 2006, Lewis 2006) but included only those attacks confirmed by government officials or medical personnel.

"It is not valid to initiate hunting on the grounds that it will reduce risk of cougar attacks on humans. Quite simply, sport hunting will not reduce the risk of cougar attacks on humans."
- Dr. Paul Beier

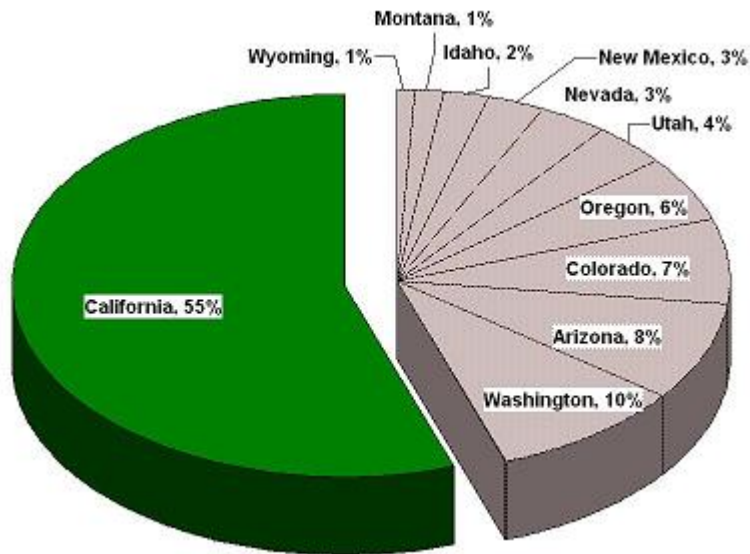


Figure 6. Distribution of human population in western U.S. states. Source: U.S. Census Bureau (2000)

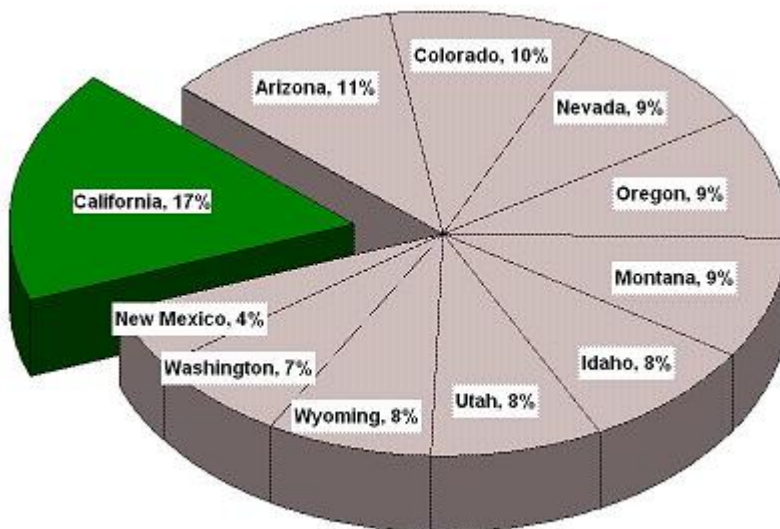


Figure 7. Distribution of suitable mountain lion habitat in western U.S. states. Source: Ashman et al. (1983), Edwards et al. (1995), Merrill et al. (1996), Thompson et al. (1996), Cassidy (1997), Davis et al. (1998), Redmond et al. (1998), Kagan et al. (1999), O'Neill et al. (2001), Schrupp et al. (2000), Scott et al. (2002), NMGFD (2005), CDOW (2005), Wolstenhulme (2005)

It is important to note, as mountain lion researcher Dr. Rick Hopkins has pointed out, the western states differ with regards to human population and amount of suitable mountain lion habitat (Figures 6 and 7). Therefore it would be inaccurate to compare the number of attacks in California, which has more than 92 thousand square miles of lion habitat and 34 million people, to the number of attacks in New Mexico, for instance, which has a little over 24 thousand square miles of lion habitat and fewer than 2 million people.

Therefore, to correct for variations in human population and amount of suitable mountain lion habitat for each state we calculated:

- The average annual number of attacks per one million residents from 1972 (the first year sport hunting was prohibited in California) to 2005.
- The average annual number of attacks per 10,000 sq mile of suitable mountain lion habitat from 1972 to 2005.

Human populations were obtained from decadal counts and population estimates for years between counts

from the U.S. Census and from the government of British Columbia. Estimates of the amount of suitable mountain lion habitat for each U.S. state were obtained from the national Gap analysis program and/or from state wildlife agencies. (No data on suitable habitat were available for British Columbia or Alberta.)

Findings

- Nine western U.S. states, as well as British Columbia, which allow sport hunting of mountain lions, had a higher per capita rate of attacks on humans than did California, from 1972 to 2005 (Figure 2).
- Two western U.S. states which allow sport hunting of mountain lions had a higher rate of attacks on humans per 10,000 square miles of suitable mountain lion habitat than did California, from 1972 to 2005 (Figure 3).

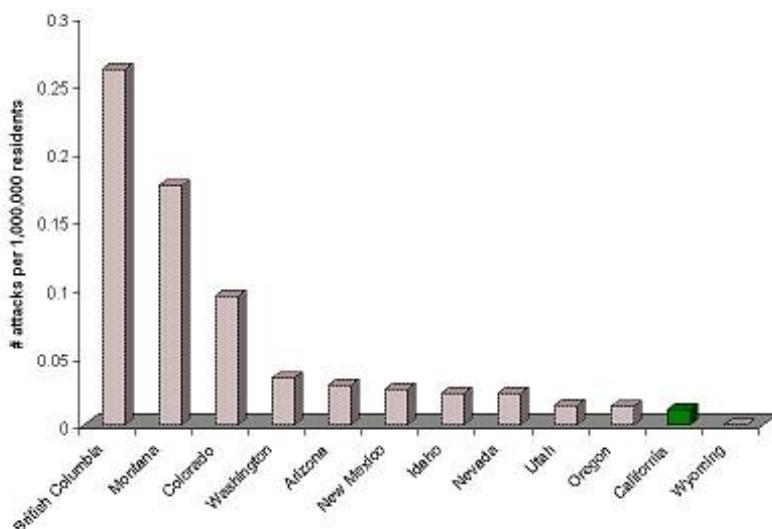


Figure 2. Annual mountain lion attacks on humans per one million residents in the western U.S. and British Columbia, 1972-2005

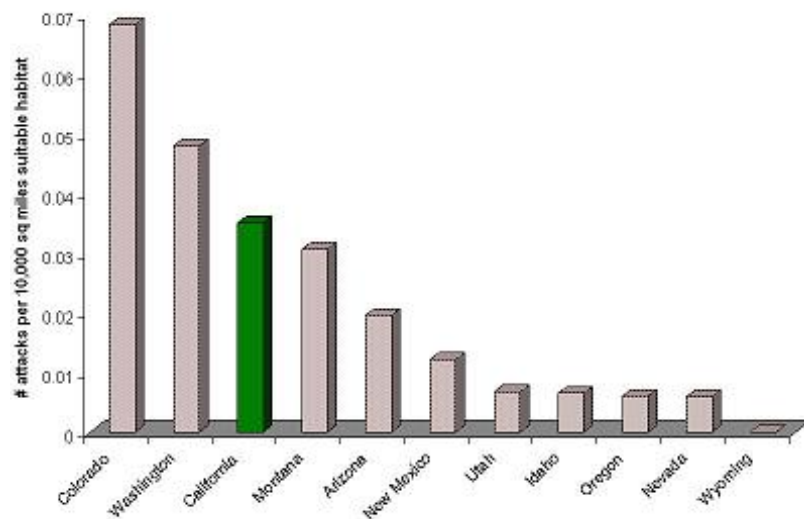


Figure 3. Annual mountain lion attacks on humans per 10,000 square miles of suitable mountain lion habitat in the western U.S., 1972-2005

It is notable that there were no mountain lion attacks on humans in California for the first 15 years after sport hunting was banned in 1971. During the same period, however, there were 9 confirmed attacks in U.S. states

