

A Resident and Livestock Owners Guide to Living in Lion Country

BIOLOGY AND BEHAVIOR



Scientific Name: Puma Concolor

Common Names: Mountain lion, cougar, panther, puma, and many, many more.

Appearance

The mountain lion is tan in color, with black tipped ears and tail. Adults weigh 80 to 180 pounds and stand two to three feet high at the shoulders. The length of an adult lion is 6 to 8 feet from the nose to the tip of the tail. The tail measures one-third of the lion's length. Mountain lion kittens have camouflaging spots and rings around their tails.

Behavior

Mountain lions are calm, quiet and elusive. They prefer areas with dense undergrowth and cover, and will leave an area where they perceive a threat. Mountain lions live solitary lives, spacing themselves across their habitat by marking and defending areas known as "home ranges." Home ranges contain resources cougar's need to survive: hunting areas, water sources, safe resting places, lookouts, and for females, safe places to raise young.

Although lions are solitary unless mating or accompanied by their young, their territories will often overlap those of the opposite sex, and only occasionally overlap with those of the same sex. A male's home range is generally larger than a female's. The home territories of mountain lions can cover hundreds of square miles, depending on the availability of prey, time of year, and changes in the local vegetation.

Diet

An opportunistic hunter, mountain lions eat prey that is familiar and easily available. They hunt alone from dusk to dawn, taking their mainly primarily from behind. Mountain lions primary prey is deer, but they also feed on wild hogs, raccoons, rabbits, porcupines, and birds. A mountain lion may kill a deer every one to four weeks. They often drag their kill to another area and then cover it with dry leaves, grass or pine needles – known as "caching" – to protect it from other animals and to reduce spoilage. A lion often returns to the kill several times to feed, for a period of three days to one week.

As one of North America's largest predators, mountain lions play an essential role in maintaining the health of deer populations. Cougars often prey on the sick, weak, young, and old deer, which helps to control disease and keeps the deer herds strong. Also, they keep deer populations from growing too large or staying in an area for too long and over-browsing their habitat. Over-browsing can threaten native plants and also destroy important habitat for song birds and other animals.



Abilities

Mountain lions are incredible predators with an adaptability to a wide variety of habitats and prey species.



Mountain lions can:

- bound up to 40 feet running
- leap 15 feet up a tree
- climb over a twelve foot fence
- walk many miles at 10 mph
- reach speeds of 50 mph in a sprint

Lions sense movement more accurately than they see detail. Seeing in pixilated mosaics, their wide angle and night vision is much greater than our own. A lion's hearing is acutely sensitive, far beyond human range. Their ears move independently to pinpoint the source of sounds.

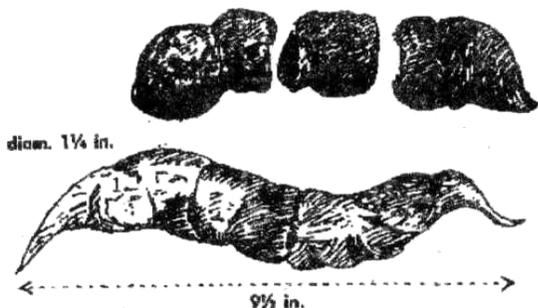
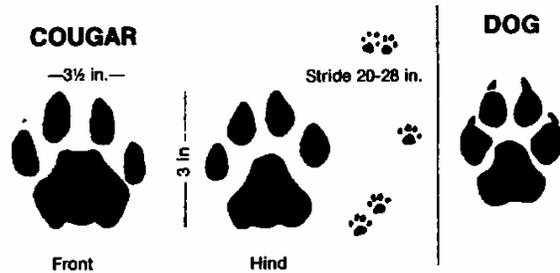
Lion "Sign"

Mountain lions are constantly roaming their territories in search of food, water and shelter, often walking more than 10 miles per day. This movement enables them to maintain territories large enough to sustain themselves, and for males it provides an opportunity to monitor and mate with the females whose territory overlaps his.

As lions roam they leave "sign" of their presence in the form of tracks, scat and scrapes. Identifying lion "sign" is a much better indicator of the presence of mountain lions in an area than a sighting of the actual animal. The vast majority of mountain lion sightings – from 75 up to 95 percent – are cases of mistaken identify.

Tracks

Lions have a distinctive "M" shaped pad, and their claw marks do not show in the track. Walking, the lion's hind foot steps in his fore track, creating overlapping patterns. Cats usually walk through life; like their domestic cousins, they choose a very easy and deliberate walking pace with the result that their tracks typically appear clean and undisturbed, the animal's weight showing in an evenly distributed impression.



Scat

Cougars will deposit their scat in the middle of trails and dirt roads as a territorial marking. Mountain Lion scat tends to be segmented. The presence of hair, bones and teeth is common. They can be over an inch in diameter.

Scrapes

They will sometimes scrape together a pile of dirt or debris, leaving visible scratch marks in the ground, upon which they may urinate or defecate. This is another form of territorial marking.

LIVING IN LION COUNTRY

There are a number of steps you can take to prevent yourself, your neighbors and your domestic animals from having negative encounters with mountain lions. Good neighbors take responsibility for ensuring the welfare of their animals, BEFORE a lion enters the area. Taking action to remove attractants and discourage lions from entering your property will also help increase your neighbor's security and the safety of your community.

Domestic animals, including dogs and cats, share many of the characteristics of the mountain lion's natural food, and when unprotected may fall prey to mountain lions. Typically, the response has been to kill the mountain lion. Killing a lion, however, offers only a temporary result, as other mountain lions will move into the now vacant habitat and attempt to establish a territory. These lions may be young, small, and inexperienced. If the lion has not developed its hunting skills enough to prey on deer, it may be more likely to prey on pets.

Do Not Feed Wildlife

By feeding wildlife such as deer, raccoons, feral cats, etc., you naturally attract their predator—the cougar. Bird feeders are not recommended in bear and mountain lion habitat, but if you do have bird feeders make sure the seeds are only accessible to birds; and if the scattered seeds are attracting other wildlife, remove the feeders. Design your landscape with plants that will not attract deer. See the California Department of Fish and Game's *A Gardener's Guide to Preventing Deer Damage*.

Make sure that food set out for pets, livestock, or birds is accessible only to the animals that you are trying to feed. Fence in vegetable and fruit gardens that might attract wildlife.



Keep Pets Safe

Cats and dogs are easy prey. The best way to protect your pets is by not letting them out unattended. Roaming pets, especially when they stray far from buildings, are easy prey for cougars. If you allow your pets to roam, keep in mind that you are risking their lives—just as city dwellers take a risk in letting their pets play near a busy street. Mountain lions hunt primarily from dusk to dawn, so at a minimum, bring your pets indoors in late afternoon and let them out again after the sun rises. When walking your dog in mountain lion habitat, keep them on a leash.

Never stake an animal in mountain lion habitat. This is precisely what a poacher would do if trying to bait a lion into an area. If you have a barn or similar structure, consider placing a pet door just large enough for your pet but small enough to keep out a cougar, and close off all possible points of entry for a cougar.

Clear Brush

Mountain lions prefer to hunt and stay where escape cover is close by. In addition, brush, small trees, and shrubs will attract deer to your yard, and lions will follow deer, their preferred prey. Clearing vegetation that can conceal mountain lions and other predators is an effective technique for discouraging mountain lions from remaining near your property and preying on domestic animals.

Install Outdoor Lighting

Mountain lions depend on surprise to catch their prey. Installing motion or timer-activated outdoor lighting around your home and animal enclosures may keep mountain lions away. You might also try loud noises, sprinklers, or other frightening devices, such as those used to keep birds out of fields.

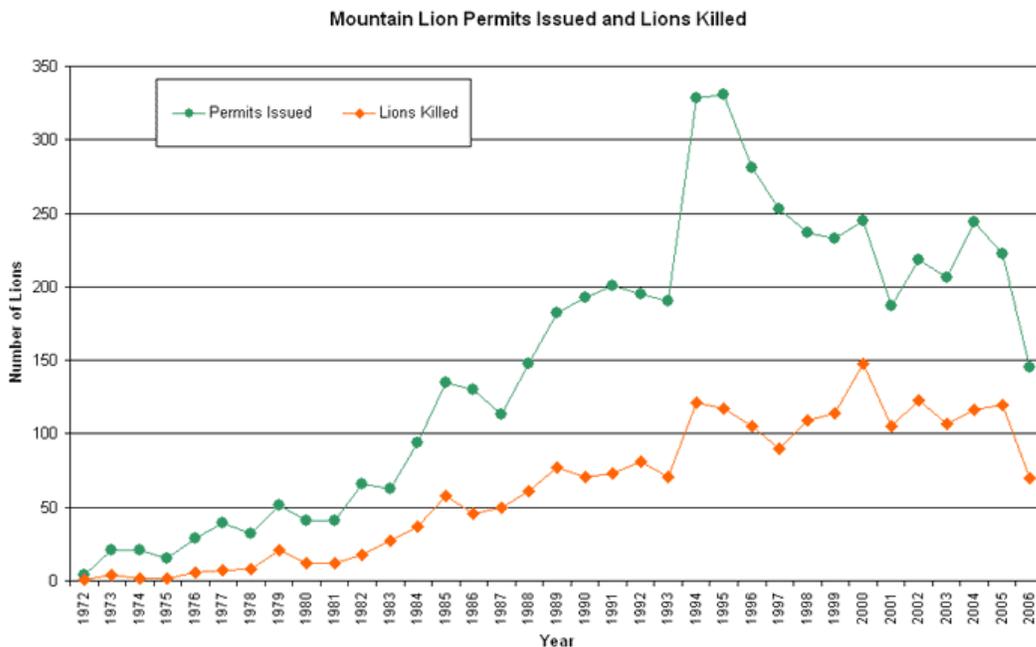
PROTECTING PETS AND LIVESTOCK

Unlike wild animals, most livestock and pets do not have the skills to protect themselves. Thousands of years of breeding have made domestic animals dependent on people for protection. In the United States, livestock owners have traditionally turned to government agencies to kill wildlife which threaten livestock production. However, statistics show that even when lions are killed on the same property year after year, livestock losses continue. Killing a lion for preying on livestock does not reverse or compensate the livestock loss, does not prevent future losses and costs taxpayer dollars for the kill. Young, inexperienced lions that are more likely to prey on livestock move into vacant territories and continue the cycle of killing and being killed. Some ranchers say that the best protection they have from mountain lions is an older, more experienced male lion established somewhere on the ranch.

Even completely eliminating lions from a geographic region will not prevent depredation. If there are no lions to live in the territory, other predators, particularly coyotes, will fill the space. The only real solution is to prevent livestock depredation by implementing effective and non-lethal predator control methods.

Depredation Trends

Department of Fish and Game records show a steady increase in livestock losses and mountain lion depredation over the past decade. This trend spiked in the year 2000 when mountain lions killed for depredation increased by one-quarter over the previous year (149, up from 114).



Though depredation has been increasing, the number of depredation permits issued for livestock losses incurred by traditional, economically viable, open range ranching operations has remained fairly constant.

Two other factors are the primary causes of the increase in issuance of depredation permits. As urban areas grow, the length of the urban fringe, where suburbs meet the countryside, also expands. This growth, and the popularity of “ranchettes” and “hobby farms” in rural areas, has increased the frequency of domestic animals coming into conflict with wildlife.

At the same time, such development dramatically reduces remaining wildlife habitat relative to the number of people the growth accommodates. It is no surprise that permits based on domestic pet and horse losses to mountain lions have recently tripled and doubled respectively.

LIVESTOCK PROTECTION METHODS

Non-lethal management provides an effective and ecologically sound alternative to lethal control for reducing conflicts between humans and pumas. Numerous studies document the success of non-lethal methods with a variety of carnivores, especially coyotes.



While the scientific literature is deficient with regards to the effectiveness of non-lethal methods with mountain lions (a reflection of the relatively low impact of mountain lion predation on livestock), the evidence strongly suggests that many of these techniques are effective with mountain lions. These methods fall into three categories: animal husbandry, behavioral modification, and habitat manipulation.

Animal Husbandry

Selecting Appropriate Livestock

Certain breeds of livestock have specific needs or weaknesses that must be considered in relation to habitat, terrain, and grazing conditions. Before obtaining new livestock, ranchers should evaluate their grazing habitat and select breeds that are appropriate for that habitat and resident carnivore species. Some ranchers experiencing chronic mountain lion predation have shifted from sheep to cattle production, and in areas with high predation some have changed from cow-calf to steer operations.

Multi-species Stocking

Raising sheep and cattle together—called "flerds"—has proven to be an effective way to deter predation. When carnivores approach such flerds, the cattle encircle the more vulnerable sheep, which discourages the predator from attacking. If the risk of getting injured is high (as from being kicked by a full-grown cow or gored by horns), most predators will reconsider preying on livestock.

Shed Lambing

The practice of lambing, calving, and kidding in sheds protects young from both predation and inclement weather. Ewes and lambs are typically confined to corrals next to the lambing shed for as long as two weeks after birth. Shed lambing can also lead to higher lamb survival because ranchers can treat sick lambs and “mother” orphaned ones. By moving pregnant ewes or goats to barns or other enclosures where they can be monitored, predation can be virtually eliminated and veterinary help be provided for the birthing problems that often arise.

Fall Lambing

Adjusting the lambing or calving time of a rancher’s animals can be an effective way of limiting, or even eliminating predation. Livestock losses are typically highest from late spring through September as coyote packs provide food to young pups. If livestock producers change to an autumn calving or lambing program, the opportunity for coyotes to prey on young livestock can be significantly reduced.

Protect Vulnerable Animals

Lions are attracted by the smell of blood. Keep injured animals, or livestock nearing and following birth, in fully enclosed structures. Immediately remove and destroy afterbirth, carcasses, and other animal by-products from areas near livestock enclosures or homes. It appears that mountain lions are most likely to be tempted by domestic animals in the spring when the deer herds are migrating.



Use Guard Animals

Livestock guarding dogs have proven to be one of the most effective strategies for reducing livestock predation by mountain lions and other large carnivores. Introduced to the United States in the early 1970s from Europe where they have been used for thousands of years, guard dogs were being used in at least 35 states by the mid 1980's.

The most popular dog breeds used as guard animals include Akbash, Great Pyrenees, and Komondor. When properly trained, livestock guarding dogs have reduced predation on livestock by 60-93% and are well received by ranchers. Some researchers reported that the average estimated value of open range sheep saved per dog per year from predators was \$3,610, a figure which greatly exceeded the purchase price of a guard dog (reported at \$240 for pups and \$690 for adults) and their annual maintenance cost for food, veterinary care, and miscellaneous of \$250. There may also be costs associated with the initial training of guard dogs.



Guard dogs are not pets, and must be specially raised and trained in order to be effective. They may also pose a risk to people, and are best suited to large herds in remote locations. Guard animals — such as llamas and donkeys — are more effective against coyotes than lions. Horned cattle are also being used in some ranching operations as a deterrent to predators.

Herding

Historically, the use of herders who stayed with the sheep flock day and night greatly reduced predation and the presence of predators near livestock. When an increasing number of sheep ranchers began relying on public subsidized lethal predator control, herders were often the first to go.

Today, some ranchers continue to implement herding in their livestock husbandry practices because of its effectiveness in reducing or eliminating predation and an increasing number are implementing community-based shepherding systems where neighbors take turns caring for and tending livestock.



Livestock Enclosures

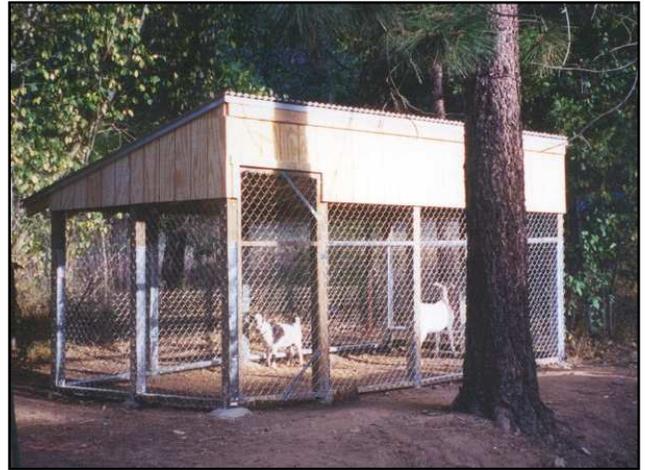
Confinement is one of the simplest and most effective ways to reduce predation by large predators. Ranchers that keep sheep in corrals day and night have significantly fewer losses than those that do not. However, because this practice is not feasible for all operations, it may be more practical to confine livestock in corrals at night, when mountain lions are most active. While this method may not be convenient for large, open-range operations, it may be economically beneficial if losses are concentrated in a specific area. Portable fencing can work well for open-range operations.

The best protection measure is to secure livestock in fully enclosed barns, pens, or sheds. Openings, such as windows, doors, or large gaps, are attractants and might provide access for highly curious lions. Be sure to place all livestock enclosures, both covered and open, away from any trees or brush that lions might climb or hide within. Construction plans for the completed enclosures can be found at www.MountainLion.org/publications.asp. The following page includes real-life examples of enclosures built to better protect livestock.

Before: these corralled goats are not protected from mountain lions, which can jump 20 feet vertically.



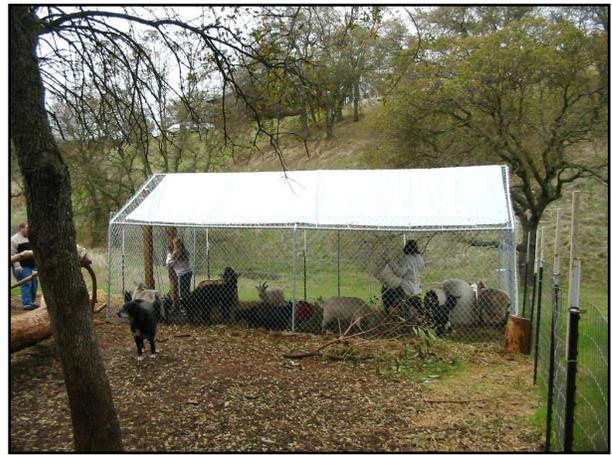
After: An enclosure with a lid is mandatory in lion country, and also protects livestock from inclement weather.



Before: these goats are vulnerable to a number of predators.



After: safe and sound.



Before: with a brush-covered hillside adjacent to a pen with no cover, these pigs are very vulnerable to predation.



After: Room to roam, free from outside dangers.



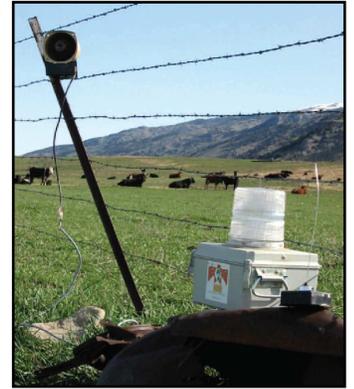
Behavioral Modification

Frightening Devices

Researchers have developed several devices designed to frighten or deter large carnivores from attacking livestock, though these are generally effective when livestock are confined in small pastures. One such frightening device is the “Electronic Guard,” produced by the U.S. Department of Agriculture, which consists of a blinking strobe light and warbling type siren that activates for 7–10 seconds every 6–7 minutes at night. While we are not aware of any studies examining the efficacy of frightening devices such as the Electric Guard with mountain lions, their effectiveness has been documented with coyotes and wolves.



Another device that keeps predators and other animal "intruders" away is the “Scarecrow.” With a motion detected blast of cold water this device is a humane and effective method of deterring animals from your yard. It is hooked up to a normal garden hose and mounted in the ground. When the motion detector senses movement, the Scarecrow sprays a 3-4 second burst of water, and then resets itself. The spray head can be adjusted from 10°- 360° to cover a small or large area and has a 35 ft range for flexibility in placement. The Scarecrow is simple to use, safe and inexpensive.



While frightening devices may produce only variable and short-lived benefits if maintained in the same location, altering their placement, varying the frequency of sound and light bursts, and utilizing larger numbers of devices can retard habituation by carnivores.

Aversive Conditioning

Aversive conditioning is a promising technique that has the potential to reduce human conflicts with mountain lions. Currently used with black bears in California, New Jersey, and British Columbia with great success, aversive conditioning is implemented by police officers (often the first responders to “nuisance” wildlife calls) and wildlife managers who carry 12 gauge shotguns and kits containing a range of lethal and less than lethal rounds, including pepper spray, screamers, bangers, bean bag rounds, and rubber slugs. Bears engaging in unnatural behavior, such as foraging in dumpsters and walking on streets during the day, are conditioned until they leave the area. The intent is not to drive bears out of the community, only to teach bears that certain behaviors will not be tolerated. Successfully “educated” bears keep out bears living in the surrounding forests via maintenance of their home ranges. While bears and mountain lions differ behaviorally, these techniques may be modified or used with mountain lions and need further study.

Habitat Manipulation

Brush Clearing

Mountain lions prefer to hunt and stay where escape cover is close by. Many prey species such as raccoons, rabbits etc. inhabit brush and can attract predators. Removal of brush and trees within ¼ mile (0.4 km) of buildings and livestock concentrations can result in reduced predation. Clearing brush around the home and property can also increase protection from wildfires.



Fencing

If covering your pen is not an option then you must build a tall fence. Fences should be at least 10 feet high, constructed of either heavy woven wire or alternating hot and grounded electric wires charged with at least 5,000 volts. Electric and non-electric fences have been shown to prevent or significantly reduce the incidence of predation on livestock and could thereby lead to a reduced demand for depredation permits.



There are three general designs of anti-predator fencing: netwire and barbed wire, electric fences, and combinations of the first two designs. Climbing can be discouraged by a wire overhang or single electric wire at the top of the fence. While permanent fencing is an excellent option for small pastures, it is impractical on the vast public lands of the west where the high costs make it untenable for most ranchers, and where its presence impedes the movements of other wildlife species, including pronghorn antelope and mule deer. Hence, fencing should not be constructed in a manner that blocks migration corridors for wildlife. Larger operations should consider fencing a smaller area in which to confine sheep at night, or to confine ewes and lambs for the first month or so after birth. Temporary or portable fencing can be used to keep livestock together so that they can be guarded more effectively. Portable electric fencing is easy to set up and allows herders and guard animals to monitor livestock and intruders.

The effectiveness of fencing is influenced by a variety of factors, including density and behavior of mountain lions, terrain and vegetative conditions, availability of prey, size of pastures, season of the year, design of the fence, quality of construction, maintenance and other factors. Their benefits can be maximized if used in conjunction with other methods, such as the use of guard dogs or llamas: fencing can keep mountain lions out of a pasture while keeping guard animals in. Fencing has additional advantages, including greater control of grazing and impacts on vegetation, eliminating the need for herding, and reducing parasitic infestations by minimizing contact with adjacent herds.

Conclusion

Scientific research has shown that educated co-existence is the only practical long-term solution for resolving conflicts between humans and mountain lions (and other predators). These techniques, best used in combination (e.g., fencing and guard dogs; animal husbandry and frightening devices) can significantly reduce human/mountain lion conflicts while retaining the social integrity of mountain lion populations and maintaining their keystone role in the ecosystem.

Additional Resources

The following resources are available from the Mountain Lion Foundation's website www.MountainLion.org:

- [Property Assessment Guide](#) – A guide is to aid residents in understanding what features attract wildlife and enable property managers to take the necessary steps to live responsibly along side wildlife.
- [Practical Tips from On The Edge](#) - Explains important facts to keep in mind when you consider making your yard friendly to wild animals.
- [Protecting Pets and Livestock in Lion Country](#) – Provides a basic overview of mountain lion depredation and domestic animal protection methods.
- [Safe-Livestock Enclosures](#) – With the help of 4-H and FFA the MLF has designed and built two types of safe livestock enclosures. One is designed for snow loads, while the other works in warmer climates.

Literature Cited

For a list of references for the information presented in this document, and for additional information on living in lion country, please contact the Mountain Lion Foundation at 800-319-7621 or mlf@mountainlion.org.