A Rancher’s and Farmer’s Guide to Keeping Livestock Safe From Mountain Lions
Felidae Conservation Fund is a 501(c)3 non-profit organization that aims to advance the conservation of wild cats and their habitats planetwide through a combination of groundbreaking research, compelling education and cutting-edge technology.

The Bay Area Puma Project (BAPP) is a pioneering research study and education initiative in the San Francisco Bay Area that seeks to shed light on critical conservation challenges facing the puma, or mountain lion, and works to engage the public through creative tools and interactive education.

For more information please visit www.felidaefund.org and www.bapp.org
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Written and compiled in 2011 by the Felidae Conservation Fund and the Bay Area Puma Project
Why mountain lions attack livestock

Conflicts between humans and large felids have been occurring since the domestication of livestock. Large cats around the world prey on livestock for a variety of reasons. The nature and disposition of domesticated livestock is a large factor in their vulnerability to predation. They are less alert, slower, and less able to defend themselves than the majority of their wild cousins. Furthermore, in many ecosystems with large scale ranching operations, the habitat becomes degraded and the ecosystem is thrown out of balance. With less natural prey for predators to take, they often turn to domesticated livestock.

What options do ranchers have to protect their livestock?

When livestock kills occur frequently, ranchers will often go about obtaining a depredation permit, or permission to kill the offending animal. If a mountain lion is seen in the act of killing livestock or is perceived as an immediate threat to human safety, the resident may kill the lion and then immediately report the issue to the California Department of Fish and Game (CDFG). However, if the CDFG deems that there was no immediate need to kill the lion, the shooter can be prosecuted for poaching. On the other hand, if a domestic animal has already been killed by a lion, the owner has the legal right to have the mountain lion killed. In this case, a wildlife incident report is filed, a depredation permit is issued for 10 days, and a USDA Wildlife Services local county trapper will be sent to kill the lion. Although retaliatory killings of lions may protect livestock in the short term, it does little to improve the overall situation. By eliminating the resident mountain lion on a property, an empty territory is created, into which other mountain lions or other species of predators relocate. Often, younger lions will occupy these territories. These cats are more likely to prey upon livestock than older lions who are more adept at taking wild prey. To ensure the long-term protection of livestock, it is necessary to take certain steps to modify property and your ranching plans.
Methods of Securing Livestock

Making your property less attractive to predators

- Avoid attracting mountain lions' primary natural prey, mule deer, to your property by using deer-resistant plant species. Some deer-resistant species include the following:

sunflower  cactus (spp.)
fig         Jimson weed
olive       English ivy
pomegranate redwood sorrel
yarrow      lavender
chives      lupine
crown vetch monkeyflower
African daisy wax myrtle
ewild ginger  currant
aster       rosemary
pot marigold fir
bush poppy  bigleaf maple
toxglove,   cedar
St. Johnswort holly
California poppy false cypress
wild strawberry juniper
mint        chinaberry
catnip      date palm
lamb's ears spruce, pine
bush germander California pepper tree
verbena
calla lily
hollyhock
aloë
coyote brush
spice bush
- Please consult California Department of Fish and Game’s “A Gardener's Guide to Preventing Deer Damage” and Felidae’s “Beautiful and Safe Bay Area Gardens” for a more complete listing of deer-resistant species.
- Feed pets indoors.
- Clear brush nearby livestock enclosures to prevent mountain lions from hiding or stalking in concealment.

**Livestock management to promote a healthy rangeland**
- Coordinate livestock calving season with that of the resident wildlife. Mountain lions often prey upon young animals due to their ease of capture. They will be less likely to prey upon young livestock if there is an ample supply of young wild game.
- Rotate livestock between different grazing areas and rest depleted pastures to allow grazing areas to rejuvenate. This will prevent the degradation of the rangeland and allow wild game populations to remain healthy.
- Provide supplementary feeding to livestock during the dry season to help prevent the depletion of the grazing supply for wild game.

**Effective design of ranching operation**
- Bring free-ranging livestock into an enclosure at nightfall since mountain lions do the majority of their hunting at night. Effective night enclosures should include the following:
  - Roofs that are sturdy enough to withstand the weight of a snow load or a mountain lion.
  - An “apron” around the perimeter of the fence to prevent digging animals such as coyotes from gaining access. Fencing material placed along the ground and extended out a few feet from the fence.
  - Chain link laid across the floor of the enclosure to allow for mobilization if desired.

- Keep enclosures and calving pens close to the house. Mountain lions are less likely to attack livestock kept near human habitation than livestock kept out in the open.
- Visual barriers placed on fencing of enclosures prevent lions from seeing the livestock inside. Cloth screens, shade netting, or burlap can be effectively used to create these barriers.
- Remove trees or large branches near the exterior of livestock enclosures to prevent mountain lions from entering.
- The following frightening devices can be employed to scare off approaching mountain lions:
  - Motion-detecting lights
  - The Scarecrow, a motion detector that emits a cold blast of water
  - The Electronic Guard, a device that uses light and sound in different intervals and combinations
- In order for frightening devices to be effective over time, their location and the frequency of their sound and light emission should be alternated. This will prevent lions from becoming habituated to the devices.

Guard animals
- Guard dogs, if raised and trained properly, are an effective means of preventing livestock loss. The best breeds are the Anatolian Shepherd, Akbash, Great Pyrenees, and Komondor.
- Guard dogs should be reared with the flock from 8 weeks of age with limited human contact.
- Since guard dogs may be aggressive towards other pets or unknown people, signs should be posted to alert passers by of their presence and neighbors should be notified.
- Guard donkeys alert the rancher of the presence of a predator. Female donkeys are the most desirable for this duty, as they are less aggressive towards other livestock and more aggressive towards predators.

Non-electric fencing to exclude predators
- Fencing is most effective if it is constructed before the mountain lion has entered a livestock area, as lions may be less deterred by a fence if they already view the livestock as prey.
- Since mountain lions are capable of leaping fifteen feet vertically, it is ideal to construct a fence of at least that height.
- Wire mesh fences should have horizontal wires spaced at no more than 15 cm apart and vertical wires at every 7-8 cm.
- The fence should be barbed at the top and bottom to prevent predators from trying to climb over or dig under the fence. To allow non-predatory digging animals passage through the fenced area, swing gates can be installed. These gates are similar to dog doors and can be made from scrap metal and wire cut-offs.

**Electric fencing to exclude predators**

- The components of an electric fencing system should include the following:

1. Energizer, or the power source of the fencing unit. For an electric fencing unit to be effective against mountain lions, the energizer must be capable of charging the hot wires with at least 5,000 volts. Some energizers are intended for small enclosures whereas others are capable of electrifying large areas. Therefore make sure to choose an energizer that is capable of electrifying the entire area you are intending to secure. Energizers are either plug-in or battery-operated. Plug in energizers are usually more consistent in electrical output and lower maintenance than their battery-operated counterparts. Battery operated energizers require frequent monitoring but are useful in remote areas where plug-in energizers are not an option. Additionally, solar panels can be installed to charge the battery.

2. Steel or aluminum wire. Steel is more difficult to install but stronger and more durable. Aluminum is easier to install but crumbles with repeated bending over time. To be effective, steel wires should be either 14Ga or 12Ga, and aluminum wires should be at least 14Ga.

3. Grounding. For an electric fencing system to be effective, at least one ground rod must be installed and wire must run from the ground rod to the ground terminal of the energizer. Ground rods should be at least six feet in length and 1/2” or 3/4” diameter galvanized steel, and installed as far into the ground as possible using a t-post pounder.
- Set up of Electric Fencing:

1. Fences should be at least ten feet high with individual wires spaced four inches apart. If resources are limited, electric fencing can be installed effectively to an existing mesh fence by adding hot wires to the top of a mesh fence with a hot trip wire at the base. This is usually more cost-effective than replacing an old mesh fence.

2. Hot and ground wires should be alternated. This is the most effective design for predator exclusion. Ground wires should be connected to ground rods and the energizer’s ground terminal. Hot wires should be connected to each other and tied into the red terminal on the energizer.

3. Hot wires should be spaced no more than 12-15 inches apart to ensure that no predators pass through the fence.

4. Regular monitoring is required to ensure that the fence is adequately charged in all areas of the enclosure.

**Putting it all together**

Since retaliating against offending mountain lions only provides a short-term solution to protecting one’s livestock, it is economically and environmentally beneficial to predator-proof one’s property. No single method for preventing livestock loss will be effective in the long-term on its own. A combination of several techniques will contribute to an overall safer ranching operation and lower the chances of livestock predation by mountain lions.
Works Cited


Enclosure Assembly Instructions

1. Select a level area 10 feet by 20 feet for assembly and placement of the enclosure.
2. Assemble the roof frame of the multi-purpose canopy kit according to the manufacturer’s instructions.
3. Measure half the length of the gable ends of the roof frame and drill ¼” holes for the eyebolts.
4. Insert eyebolts, with a washer on each side of the pole, making sure the “eye” of the eyebolt is on the inside of the frame, and secure it with a bolt.
5. Attach the turnbuckle to the eyebolt by twisting the eye open with pliers, slipping the turnbuckle on, and twisting it closed again.
6. Attach the tension wire to the turnbuckle using the u-clamp.
7. Once the eyebolt/turnbuckle is in place at each end and connected to the tension wire, tighten the turnbuckles until the wire is taut.
8. Lay the chain link across the length of the roof on each side and attach it to the frame and tension wires with the rebar tie wire. Allow for one foot over hang on each 20’ side, unless placing posts in the ground. If you do this run another row down the center of the canopy to completely cover roof with chain link.
9. Loosely attach a 10’ length of chain link or chicken wire/poultry netting across the front and rear gable ends and use the bolt/wire cutters to cut it to size, leaving enough wire to bend down and close any open links. Remove the excess. Tip: Double layer the chicken wire for more security.
10. Attach the plastic sun-shade or tarp.
11. Lift the roof and insert the legs. This works best with six people, one at each leg.
12. Using the sledgehammer, pound the six 4 foot t-posts into the ground right next to the frame legs and use the hose clamps to strap them tightly together.
13. Attach the chain link over hang to the canopy legs using hose clamps, near the bottom edge of the chain link.
14. Attach gate to middle post using standard self-closing hinges for a chain link gate. Place a 6’ chain link post opposite the door and stick in place with 4’ t-post.
15. Attach gate closure to gate and new post.
16. Drill ¼” holes at the bottom of each leg and install the eyebolt/turnbuckle units and tension wire. On the two rear-most legs you will have to drill two holes and install two eyebolt/turnbuckle units, one connected to the side tension wire, another for the rear tension wire about an inch above the first.
17. Make sure the eyebolt/turnbuckle units and tension wires are attached and tightened at the bottom of both sides and at the top and bottom of the rear.
18. Begin attaching the chain link to the multi-purpose canopy kit frame, keeping the top of the chain link even with the over hanging chain link. Start at the front corner and work toward the back, then around the back and toward the front again. Use the bolt cutters to trim the bottom of the chain link to fit the terrain and bend around the corners. Note that each roll ends with an “open” link. This can be removed by twisting it and pulling it out the top, then place the beginning of the new roll so it overlaps the end of the old roll and reinsert the “open” link to splice the two rolls together.
19. Look over the entire structure and make sure the chain link is securely attached in all places and use more rebar tie wire where necessary.
20. If the ground is not level where you have placed the enclosure, or if you intend to move it frequently, you may secure chain link across the floor of the enclosure. Attach it to the sides of the enclosure to prevent domestic animals from escaping, and to prevent digging animals like coyotes from entering.

Alternative plans for higher elevations are available upon request.
Mountain lions are calm, quiet and elusive. An opportunistic hunter, mountain lions eat prey that is familiar and easily available. They hunt alone from dusk to dawn, taking their prey — primarily deer — from behind. 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, to protect it from other animals and to reduce spoilage. A lion can be expected to return to a kill several times to feed, and then move on, following the deer herd and using the entirety of his home territory, covering hundreds of square miles. Mountain lions prefer areas with dense undergrowth and cover, and will leave an area where they perceive a threat. 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.

While many people believe that populations of mountain lions are increasing, and that fewer lions are being killed than ever before, scientific research does not confirm this.

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 will continue.

Young, inexperienced lions move into vacant territories and may escalate the cycle of killing and being killed. Older lions are skilled in taking their preferred prey — deer — and are less likely to seek out livestock. Some ranchers say that the best protection they can have is a mature and experienced lion established 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. Killing a lion for preying on livestock does not reverse or compensate the livestock loss, nor does it prevent future losses. Hundreds of taxpayer dollars are spent to kill each and every lion. The only real solution is to prevent livestock depredation by creating safe shelters for domestic animals.
Keeping Your Livestock Safe

Mountain lions are calm, quiet and elusive. Opportunistic hunters, mountain lions eat prey that is familiar and easily available. They hunt alone from dusk to dawn, taking their prey – primarily – from behind. 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, to protect it from other animals and to reduce spoilage. A lion may return to the kill several times to feed.

Mountain lions prefer areas with dense undergrowth and cover, and will leave an area where they perceive a threat. The home territories of mountain lions can cover hundreds of square miles. 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. While many people believe the mountain lion population is increasing, the truth is more lions are being killed than ever before, and scientific research shows their numbers are plummeting in many areas.

Lions and Livestock Losses

Unlike wild animals, most livestock 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 that threaten livestock production. However, statistics show that even when lions are killed on the same property year after year, livestock losses continue.

Young, inexperienced lions that are more likely to prey on livestock move into vacant territories and continue the cycle of killing and being killed. Where older lions are skilled in taking deer – their preferred prey – livestock kills are less likely to occur. Some ranchers say the best protection they have from mountain lions is an older, more experienced male lion established 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. Killing a lion for preying on livestock does not reverse or compensate the livestock loss, nor does it prevent future losses. Hundreds of taxpayer dollars are spent to kill each and every lion that is taken. The only real solution is to prevent livestock depredation by creating safe shelters for domestic animals.
## Materials List

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**SUBTOTAL** | $927.25  
**SALES TAX** | $71.55  
**TOTAL** | $998.80  

**Total Estimated Material Cost** | $1,000.00

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*Designed by the Mountain Lion Foundation to provide livestock owners an affordable means of predator-friendly animal husbandry.*