

H HIDING BEHIND a tree in the dark, shotgun in hand, I tried desperately to recall all the information I had learned while researching “*Raising Alpacas in Mountain Lion Country*”*. The day before I had found the carcass of a deer on our perimeter fence. I believed it had been killed by a mountain lion. Now I was sitting, cramped and cold, waiting for the lion to return, and praying it would not. All I knew for sure was that I had to protect my fifty alpacas.

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Raising Alpacas in Mountain Lion Country: an Update

By Eric Hoffman with Sherry Edensmith

THIS Could Happen To You:

The day started before sunrise, with a chorus of alarm calls followed by individual animals sounding off, one right after the other. On our farm alarm calls usually persist for only a few choruses and stop as a deer or coyote trots along the fence line. In our experience only the occasional raccoon that refuses to retreat can cause prolonged alarm calls.

Our perimeter fence is well constructed and secure at the base. Over the past three decades we’ve grown confident that canine predators cannot get in. A Mountain lion is an entirely different concern. Mountain lions have

been sighted in our area for thirty years, but there have been few reports of stock kills. However, in the past year there have been more sightings, a few stock kills, and cars have killed two lions as they crossed a highway. In fact we’d seen two lions within five miles of our farm. We caught a magnificent, golden sinewy animal in our headlights returning from dinner one night about six months ago. We guessed it weighed about 180 lbs. Like an apparition it stepped directly in front of our

car and then in one leap left the roadway, landed on the opposite bank, and disappeared. The cat was coming from the direction of a popular trail head for day hikers! Somehow, despite knowing all this and writing a story about a lion attack, I didn’t really think that a lion would show up at our place.

The alarm calls persisted nonstop. I grabbed a spotlight and walked down to find a bunch of males standing back from the perimeter fence milling around, alarm calling and acting unusually agitated. Shining the light in the direction the alpacas were looking revealed nothing. The alarm calls stopped. The alpacas settled down. Whatever it was apparently had left the area. An hour later, as dawn broke the calls started again. This time I walked the fence line and found a fresh deer kill laying in a depression just on the other side of the fence. The young buck’s abdomen was eaten away. All the major organs were gone and the inside of its rib cage was licked clean. The deer’s eyes were still clear, its tongue out and moist, and some of the blood around the carcass still glistened bright red. This was a very fresh kill.



Deer killed by mountain lion on perimeter fence of alpaca operation.

The alpacas in the area were still intermittently alarm calling but none of them looked in the direction of the dead deer. Instead, they were looking towards the same stand of almost impenetrable brush that they'd been focused on when it was still dark. The realization that whatever had killed the deer was lurking on the other side of the fence thirty yards away caused a chill to run up my spine. I jogged back to our house to see if I could find our shotgun. Upon returning there was another surprise. In the approximately twenty minutes it took me to return, something had moved the carcass. It had been dragged away from the fence about fifteen feet and now was partially covered by loose debris.

Though I hadn't entirely ruled out coyotes, everything pointed to a mountain lion. The predator had stayed out of sight. In my encounters with coyotes around a kill they may retreat but they are usually visible. Also coyotes don't attempt to cover-up their victims, and are less capable of bringing down or dragging a full-grown deer.

Whatever ate the deer had satisfied its appetite for now. According to researchers, if the predator had been a lone lion, it wouldn't kill another large animal for about seven days. It would feed off this carcass for few more days before moving on. If it were a mother with half-grown cubs it would need to kill again in three days. Knowing this caused some relief. There might be a few days to marshal a defensive plan but I needed to watch over this kill. Chances were high that the predator would return if we left the carcass unmolested.

I was keen to protect my animals, but I did not want to shoot a mountain lion. I have always thought seeing a mountain lion is one of the greatest treats nature can offer. I attempted to contact the California Department of Fish and Game and a trapper working for the US Department of Agriculture for assistance, but all I got were tape recorded messages and I learned there could be no contact with anyone in an official capacity for two days. The delay might negate the issuing of depredation permit. My legal options were tightly defined. The dead deer pushed up against our fence was actually lying in Fall Creek State Park, which borders our

property. Shooting is forbidden in a park. However, if a mountain lion came onto my property it could legally be shot if it menaced livestock, even without a special depredation permit. This cat's presence caused a dilemma, with few desirable outcomes.

And that is how I came to spend most of the night hidden behind a large fir tree with a loaded shotgun, watching over a deer carcass. Behind me, lower down the slope five male alpacas had kushed for the evening. They had seen the attack and eating that morning. Now they were contently chewing cud, seemingly without a worry in the world.

Sentry duty is about waiting. The hours crept by at a snail's pace. Occasionally, a wood rat would scurry along the top wire of the perimeter fence in a high wire act that was fairly comical, especially when two of them met coming from opposite directions. One would swing upside down while the other stayed upright as they passed. They did this with consistency, as if they had traffic rules. The wood rats preferred an aerial, rather than terrestrial, approach to moving in the forest at night. In the long intervals between the wood rats, there was time to contemplate the variables at work with this particular mountain lion in this particular situation.

Why had the lion come so close but not entered the alpaca pens? Undoubtedly, from the lion's lay-and-wait hiding place it had viewed dozens of alpacas but waited for a deer to happen by instead. Perhaps this cat had never crossed the line and killed domestic stock, but had simply figured out the



Mountain lions are patient stalkers. They'll sit for up to 45 minutes sizing up the best approach before drawing within 10 yards of a prey species before making their move. They are very efficient hunter. More than 80 percent of their stalks result in kills, which is much more efficient hunting success rate than other large cat species.

game trail provided an occasional meal. Studies have shown only a small percentage of mountain lions resort to regularly taking domestic animals, and those that do often teach their cubs to do the same. In this way some populations develop prey preferences, which includes fenced animals. Prey preference is a combination of opportunity and learned behavior. Owners should research what their local lions have been eating. In our case the lion came to our "door" but preyed on traditional wild game. I suppose I was staked out to witness firsthand if this animal's intention was to include alpaca on its menu. The jury was still out on the predation pattern of this particular cat.

At the crack of dawn the alpacas suddenly jumped to their feet and began alarm calling. At first there was nothing to be seen. Then, a lone coyote came into view outside of the fence. It ignored the alpacas completely. Instead it sniffed the air and slowly approached the area of the kill. At first its slowness was puzzling. We often see coyotes, usually striding rapidly, but this one took about three minutes to travel thirty yards. Keeping its eyes on the carcass, the coyote stopped often, stood perfectly still and sniffed the air, never once turning to look at the alpacas. When it was about ten yards from the kill, the coyote suddenly turned into the bushes and disappeared. Why? About five minutes later it reappeared along our fence line now moving in from the opposite direction. It was so intent on sniffing and looking towards the forest it didn't notice the human sitting twenty feet away. It tiptoed up to the carcass and began eating gingerly. The coyote was eating under duress, pausing often, looking every which way, and sniffing the air. It occurred to me that it was wary for a reason. Coyotes are often killed by mountain lions while attempting to scavenge one of their kills. Lions usually stay within one hundred yards of a kill they are feeding from. This coyote seemed to know it was skating on thin ice.

From my hiding place I decided to test the wary coyote. I hissed like a cat. The coyote bolted and was gone from view in the blink of an eye. Another hour passed and nothing came. Later that day we dragged the carcass a half a mile into the forest and left it there.

Revisiting the Past

Beth Martin, the owner of Iron Rock Ranch in Grass Valley, California, was the anonymous victim of the mountain lion attack recounted in "Raising Alpacas in Mountain Lion Country." In that attack she lost five alpacas to a mountain lion in one night. The lion leapt a five-foot no-climb fence into a two-acre paddock and killed her entire herd: four pregnant females and a young male. Wildlife biologists term this type of predation, when the cat kills more prey than it needs for food, "surplus killing". The response to the article was strong. We received phone calls from Canada and the western states. Clearly mountain lions and what to do about them are on many peoples' minds. Interestingly, most callers admired mountain lions and only wanted to harm them as a last resort to protect their animals.

Beth felt strongly that the story should be told to prevent it happening to others. At that time, reeling from the shock of what happened, she wanted to remain anonymous. The good news is she recovered and has continued to pursue her dream of breeding and selling suri alpacas. "I didn't like the role of a victim," she declared recently. "I became determined to make this work." Beth, who holds PhD in psychobiology from Stanford, took the "lion by the claws" so to speak. She redesigned her ranch with a two-tier defensive strategy to deal with mountain lions, bought a new group of suris, and has become well acquainted with how to effectively deal with mountain lions in twenty-first century California. She went from victim to mentor in six short months and from her tragedy others have been able to act proactively to deal with increasing numbers of mountain lions in western North America.

Meanwhile, Back at the Ranch...

Three nights later our saga intensified. About four in the morning a crescendo of alarm calls started from alpacas corralled on the other side of our house, not on the park boundary. The corrals have a strong perimeter fence, six-foot tall, with concrete aprons under gates and two strands of barbed wire in the dirt along the entire enclosure. It is dog and coyote proof. However, a lion could

leap over the fence in a second without touching it. Alarm calls from these pens are rare. They are located near other houses and livestock. In minutes I was dressed and in the pens, shot gun in one hand, and a powerful spot light in the other. The alpacas were clustered together looking across their two-acre paddocks to the far side. I slowly moved the light's beam along the fence and found a pair of large reflective eyes, perhaps two feet above the ground, staring back in our direction from a stand of manzanita and scrub oak. The eyes did not move. They belonged to a stationery animal, one that thought it was safe from detection. In my experience, deer and coyote will freeze in the light for a moment and then move

off. This animal sat there not moving for at least 30 seconds. I approached within about 50 yards and suddenly the eyes were gone without the slightest noise.

For the next two nights the same scenario occurred. Distant alarm calls, frantic dressing, stumbling around in the dark with a loaded gun and a light, to find only a set of eyes. On the third night I was able to detect the silhouette of a large cat moving away. This was exhausting and couldn't continue.

PROTECTION STRATEGIES: Understanding Behavior

Mountain lions can jump more than fifteen feet vertically, but they usually do this when they are leaping upward onto the trunk of a large tree. They hold onto



Two tier mountain lion deterrent. At night the herd comes inside the large catch area with a mesh top. During the day the herd are released into an adjoining pasture which is patrolled by two Great Pyrenees guard dogs. Photo by Renata Earles



Alpaca enclosure: Beth Martin, of Grass Valley, California, protects her suri herd at night by locking them in a specially designed lion proof enclosure attached to her barn. Photo by Renata Earles

the trunk with their claws before scrambling onto a limb. How high they will jump into thin air to clear an obstacle (like a mesh fence) without climbing it is not known. The hope is that with a taller fence, it is more challenging and will cause a lion to exert itself, taking away the element of surprise, which it prefers. Researchers point out a mountain lion's behavioral evolution programs it to hunt undetected. The greater the element of surprise, and the quicker the kill, the less the chance of injury to the cat. Typically they stalk to within a few yards of their prey, (preferably from an uphill position), pounce, knock the victim off balance hold it in powerful claws, bite down on the neck, and sever the spinal cord all in a split second. Mountain lions are among the most efficient predators in the world. Eighty percent of their stalks result in a kill. Things need to be right for them to make their approach. By comparison African lions working in teams are only successfully 30% of the time.

The pattern of livestock predation near our ranch in the Santa Cruz Mountains is very different than that of Grass Valley. The cat that attacked Beth Martin's alpacas had crossed the line from wildlife predation to killing fenced stock. After the attack on her alpacas, Beth learned that predation on domestic animals was fairly common in her area. In our area we found only one llama ranch that experienced cat predation, but at a slow rate of about one animal every eighteen months. This farm, twelve miles from ours, had only a four-foot high perimeter fence, low enough for dogs to jump and no challenge at all to a lion. Horse and cattle operations in the same area had lost no animals, even though there are frequent mountain lion sightings.

The hapless young buck lying outside our fence was ambushed while traveling along the fence on what had become a game trail. We knew wild animals commonly ran along the fence, but until the lion kill didn't consider carefully that such a trail might attract predators. This cat used the trail to its advantage; one side is blocked with an impenetrable fence, giving an intended victim nowhere to flee. We now realized having a game trail so close to our herd wasn't good at all.

Altering the Environment

Our goal became to make our corrals

alpacas unattractive to mountain lions by altering our fences and clearing brush so they could not hide and make the kind of stealth kill that they prefer. The heavily wooded forest that surrounds our farm offers plenty of cover for mountain lions. We set out to modify our perimeter fencing along the park boundary in two ways. We increased the height of the existing six-foot fence to nearly ten feet. The added height is deliberately constructed to lean outward. This forces anything attempting to climb over from the outside to lean backward, which is an exposed and uncomfortable climbing position. In addition, we removed all limbs and trees along the fence. I remembered a California Fish and Game film showing a lion climbing up the trunk of a tree next to a nine-foot high cyclone fence and dropping into the pen to eat the exotic deer housed there. The message was clear; building a higher fence is a pointless undertaking if there is an easy access point. To a cat a tree is a ladder. We left no ladders. If a lion wants in, it will now have to climb a fence that goes up vertically for six feet and then leans out and up for another four feet.

Along other portions of the fence on a particularly steep slope where a lion coming down the hill could easily leap over a six-foot fence, we employed a two-fence plan. We built a new nine-foot high perimeter fence 25 feet up the hill running parallel to the original. The corridor between the two fences is thick with brush about six feet tall. We basically enclosed brush the cats would like to hide in and made it into a visual barrier sandwiched on two sides by fences. In addition the brush was cut back ten feet from the upper side of the new perimeter fence, making an open area with no cover. Now a cat would have to expose itself to climb over two tall fences to actually enter a pen. We reasoned we'd created a multi-faceted deterrent. We'd taken away the uphill advantage and the visual stimulus a cat would've enjoyed by hiding in the brush and peering through a single fence. We deployed lights on timers and clock-radios that come on during the night to introduce unnatural lighting and human voices for a cat to contemplate.

It was cost prohibitive to create a perimeter fence ten feet high around the

corrals not adjoining the park. Instead we extended the height of the fencing around the catch pens, which also includes all-weather housing, to ten feet with the top four feet of the fence leaning outward, much like the fence along the park boundary. We use pellets to bait our alpacas into the catch pens at night and they have become so accustomed to the routine we often find them waiting in their catch areas at dusk. The idea of rounding animals up to protect them at night is practiced many places around the world. The Masai, in Africa, do it with their cattle to keep them away from leopards and lions. Andean herders do it to keep their alpacas safe from pumas (mountain lions) and the large Andean fox. It seems to have worked for us.

In Grass Valley, Beth Martin adopted a plan with some of the same elements but tailored to her situation with a smaller group of animals. She had a large cage built off the side of her barn, complete with a wire mesh top. It looks like a huge aviary. It is 100% lion proof and allows her alpacas to stay outside or inside safely. Each night the alpacas are taken out of the larger pasture and enclosed in this area. She also purchased two alpaca field-tested Great Pyrenees to guard her herd. The dogs live in the pastures with the alpacas and are the first line of defense. So far, so good.

It's Debatable

A few months after the attack on Beth Martin's herd, a government trapper shot a mountain lion and one of its two seventy pound cubs, when the mother lion returned to the carcass of a goat. Although the shooting was requested by the goat owner and was entirely legal, the incident kicked off a debate in the Grass Valley community about how people and mountain lions should interact. California's lion policy has been regulated at the ballot box since 1990. Hunting is forbidden, unless a lion kills livestock. There had been numerous lion attacks on domestic stock in the area. The mother mountain lion was killed in the act of teaching her offspring to hunt domestic animals. There was concern about the orphaned cub.

Emotions ran high in the ensuing public debate, and they probably always will.

It's A Balance

There is no doubt in my mind that sharing the land with mountain lions can be done in ways that allow them their space and herd stock is kept out of harms way, especially on small acreage farms. To do so requires understanding mountain lion behavior, taking cues from nature, developing defensive strategies and staying vigilant. We live in an increasingly security-conscience world. Perhaps there are non-lethal security devices that could be adapted for herd protection. Solar powered security lighting systems, new types of passive infrared motion detectors and noise making devices might provide enough distraction to convince a hungry lion to hunt elsewhere.

It's Idiosyncratic

Each farm, each environment, and each lion is unique. What works at one place will need to be modified for another.

The cat that appeared near us came in the late summer in a drought year, a difficult time for wildlife. It disappeared after the deer in the forests around our farm began meandering by with fawns, easy pickings for a mountain lion. To this day we don't know if the lion that killed the deer and watched our animals was merely curious, or intent on doing damage. We don't know if our actions were needed or to what degree our modified fences deterred a disaster. Mountain lions are such adaptable, secretive, and powerful predators, dealing effectively with them involves addressing probability more than certainty. We do know that because of our effort, we sleep better most nights.

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About the Authors

Eric Hoffman is the primary author of the second revised edition The Complete Alpaca Book, (Bonny Doon Press, 2006). He wrote the first scientifically based alpaca registry (today known as ARI) in the world and is author of hundreds of articles on all four species of camelids. His articles have appeared in International Wildlife, Animals, Pacific Discovery, California Living, Wildlife Conservation and many other publications. His speaking engagements on camelids have taken him to many places including Canada, Australia, New Zealand, Sweden, Switzerland, Peru, Germany and England.

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Special thanks to Beth Martin for contributing her time and experiences with this potentially devastating issue so that we may all learn to deal with the ever-present threats to many herds.

