

# LAND & LIVESTOCK



## Predators—Friend or Foe?

by Tony Malmberg

The tendency of our ranching culture has been to resist, fight and kill predators. In the United States there are even government “predator boards” that manage the hunting of predators. The recent reintroduction and protection of wolves and grizzly bears have brought a new twist to predator management for ranchers. Likewise, there is increased pressure from society and many special interest groups who desire predator protection.

These interests, at one level or another, are part of our future resource base. As a result, we must ask, “How must we be perceived, far into the future concerning our predator management actions?” To achieve sustainability, i.e. profitable domestic livestock production, functional ecosystem processes, and our future resource base, we must revisit our relationship with predators.

### The Predator/Prey Connection

Holistic Management can be an important means toward that end. First, we acknowledge that brittle environments evolved with pack hunting predators and huge herds of herbivores. This interaction was key to implementing animal impact through herd effect. The migration was necessary because large herds graze everything and must move to find food, creating disturbance/recovery periods on the soil surface. Holistic Management® practitioners have been using the tools of technology (fencing) and labor (herding) to mimic this process.

Obviously our culture views losses to predators as a problem. This takes us to the first testing question, “Are we addressing the root cause of the problem?” Could the root cause of losses to predators go back to the missing key, the predator/prey connection?

If so, our challenge is to overcome our instinct to *resist* predators, and learn how to *align* animal behaviors to achieve our goal of adequate disturbance/recovery periods, with the predator/prey in full contact. This will require looking toward the tool of “living organisms” more often and “technology” less often, while refocusing the tool of “human creativity” to redirect “labor.”

I think all sides of the discussion would agree that if we give predators *carte blanche* rule, we could not be sustainable economically, at least in the

short term until our livestock became less naive. So even though many practices and tools used to cope with predators admittedly do not address the root cause of the problem, we need to use these tools in the short term for economic sustainability. But by dealing with the symptoms of this problem directly, we buy time to address the root cause of the problem that are socially, economically, and ecologically sustainable.

**“Our challenge is to overcome our instinct to resist predators, and learn how to align animal behaviors to achieve our goal . . .”**

### The Benefits of Predators

About 18 years ago, we pushed weaned cows to some high country that would be easy for them to use with no calves and cool fall weather. I saw a coyote lying beside a prairie dog hole. After we dropped the cattle on water and headed home an hour later, he was still intensely focused on the hole.

The practice of Holistic Management allowed our consciousness to note this behavior. Since that day, we have recognized the coyote as a “Living Organism-tool” keeping prairie dog monocultures in check and contributing to diversity and complexity. We no longer allow anyone to hunt or trap coyotes and we actually encourage coyotes, eagles, and other scavenger/predators to frequent prairie dog towns by dragging dead animals into active portions of “dog towns.”

Before we began practicing Holistic Management we had huge monocultures of prairie dog towns. Over the years they have broken down into small “villages,” with only 10-20 active holes in each community. The practice of drawing predators to these smaller villages, along with our placing a salt block in the middle of active dog holes, deferred grazing to provide predator cover, and erecting raptor perches, keeps the prairie dogs moving. Rather than large monocultures of prairie dog towns denuding every vegetative form, the communities move around. High grass quickly moves into the aerated and fertilized area vacated by the prairie dogs.

### Need for Predator Competition

The flourishing coyote community, however, didn’t come without a price. As we began to diversify our grazing animals on the ranch, they soon honed in on our dairy-goat herd. Each fall with the first couple of

snows, we would lose some goats to coyote predation. Then my wife, Andrea, witnessed a pack of coyotes in the middle of the day pushing the whole herd until a goat finally fell to its death off a cliff. We weren't ready to start killing coyotes, but this scene certainly convinced us that keeping them horned and corralled at night was insufficient. We needed to push back, so Andrea got an Akbash. We never lost another goat under the Akbash's watch.

## Lessons Learned

Predators are not just wildlife. They are often animals owned by other humans. For example, hungry guard dogs were Bill Hancock's worst nightmare. Bill has worked on, managed and owned a chunk of country stretching 65 miles (104km) and spreading over 13 townships in the state of Wyoming for 59 years. The ranch ran as many as 4,000 mother cows and 2,000 yearlings. One spring a pack of eight abandoned guard dogs showed up to take a toll on Bill's herd. The root cause of this problem was that a sheep herder wasn't feeding his guard dogs, and they had to fend for themselves. They got the guard dogs gathered up and started feeding them to address the root cause and stop the carnage.

Bill calved most of their cows on open range and lost few calves to coyotes. When a cow was ready to calve, she would go off by herself. The new mother stayed alone with her calf for about three days and then took her free traveling newborn to bunch back up with about a dozen pairs. These small bunches left a baby sitter with the calves, when they went to water or made a circle grazing.

However, some instances required feeding hay and Bill says losses to coyotes escalated because the cow would leave their calf unattended when she came to the feed ground to eat. They had some success hazing coyotes out of the area by running the coyotes on horseback while the cows ate. Killing coyotes rarely helped the situation. One year, government hunters killed six on the feed ground and they were replaced the very next day. Bill says you need to view it as a surgical strike rather than a purge and claims the calf killing stops if you identify and kill the killer.

On one occasion calf losses were exceedingly high yet Bill refused to randomly kill coyotes. It took several days, but he finally located the culprit. It was a coyote that had been injured and his back legs were crippled. He was unable to hunt and relied on the easy pickings of new born calves. Once the killer is eliminated, the coyotes roam around and clean up the afterbirth and don't bother the calves.

Bill thinks breed might have a little influence on how cattle cope with the presence of predators, and he particularly has a preference for horned Hereford cows. More important, he claims, is how the cattle are run and raised. If they grow up tending for themselves out on the range, they will do pretty well. In addition, he is adamant about never having a stock dog around because it changes the cattle's natural instinct to fend off canines.

Natural instincts, behavior, and patterns can benefit livestock producers. Biologists have noted one of nature's strategies is to have their young all at once. The mass of births over a short time period limits the percentage of young preyed upon by their predators. Ranchers could piggy-back onto this natural defense if they calve at the same time as the wildlife. The sheer numbers of potential prey could limit losses. This type of solution could have a better marginal reaction than killing predators, which as Bill Hancock noted are merely replaced. This old time rancher sees the root cause of loss to predators as livestock not fending for themselves. He sees his best marginal reaction as not disrupting or removing the predator/prey tension, but in culling mother cows that fail to "push back" and protect their calf.

*While coyotes pose a problem particularly for small stock producers, they are an essential part of the ecosystem. The Malmbergs have used them to help maintain the population of prairie dogs on their ranch and do not allow people to hunt the coyotes anymore.*



## Predator Preference

Domestic livestock losses to predators can rise and fall based on the predator's preferred prey. Bob Harlan ranches near Wyoming's Hole in the Wall. His lamb losses are inversely proportional to rabbit numbers. Bob said the rabbit cycle rises and falls in a six- to eight- year cycle. When rabbit numbers are high, the coyotes are well fed and even have larger litters.

Bob suspects the Mule Deer population, which serve as prey for the mountain lion may have a bearing on his lamb losses too. Bob thinks the root cause of loss to predators is the absence/scarcity of the predator's natural prey. Managers may improve their marginal reaction by paying attention to the population cycles of the prey species.

Prey population cycles and seasonal cycles affect wolf-kill pressure for James Stuart, manager of Sun Ranch, near Ennis, Montana. He says when elk leave for the high country in late July, wolf hunting pressure on his cattle immediately escalates. This happens because many of the pups are too young to follow their prey base, so they turn to livestock as a primary source of food.

In trying to better understand the wolf behavior, James asks, "What did wolves naturally prey on when the elk leave in July?" He suspects Mule Deer probably provided this link in the food chain before ranching and domestic livestock appeared on the scene. The data shows that 25-30 years ago there were many more Mule Deer and a lot less elk. However, he has not determined the biological weak link in the Mule Deer's life cycle to re-supply this native food source for the wolves but thinks the high elk numbers drive the Mule Deer numbers down. He suspects that baby calves are easier to hunt than elk. Could this shift in community dynamics affect wolf/livestock interaction? Is scarcity of the natural prey the root cause of wolves killing livestock?

This twist could throw us a head fake if we get diverted from the testing questions. If we assume elk are the preferred prey rather than following the investigation through we might miss the real root cause of the problem. What if too many elk is the root cause of fewer Mule Deer? If wolves prefer Mule Deer to livestock this could be the way to address the root cause of the problem. What is the biological weak link of the elk and the Mule Deer? Favor the Mule Deer, stress the elk, and it may address the root cause of the problem in the long term.

## Living with Predators

The Sun Ranch takes a holistic, big-picture view and wants to minimize the loss of life, as viewed from the dynamics between wolf and cattle populations. From this perspective, a wolf kill is viewed as a problem and not a zero tolerance catastrophe.

CONTINUED ON PAGE 10



## Predators—Friend or Foe?

continued from page nine

When Sun Ranch started managing to be in harmony with the wolves, some friends became enemies and some enemies became friends. When this happens it is imperative to have a clear understanding of the future resource base in your holistic goal. James says that straddling the fence can be difficult. Sun Ranch has partners and friends in both the ranching and environmental communities. They simply view wolves as part of the landscape they manage.

Sun Ranch livestock operations are mostly confined to private lands, which gives them more flexibility than ranchers operating on federal lands. Sun Ranch makes extra efforts to use that added flexibility for advancing the future of wolf/livestock interactions. They started Sun Ranch Institute toward this endeavor and have committed to more employees than “ranch only” operations would demand.

James thinks a root cause of wolves killing domestic livestock lies in habituation, which reduces the effectiveness of human presence as a tool—reintroduced wolves have not had sufficient negative feedback from humans or domestic livestock, and they do not have a fear of humans.

Addressing the root cause and creating fear could be a federal offense if actions are too heavy handed. At this point the Sun Ranch, the Sun Ranch Institute, and other community members are working to understand wolf social structure, their habits, and their seasonal cycles. The group develops a proactive grazing plan to avoid exacerbating a livestock-wolf interface. Their grazing plan notes the location of the wolf dens, rendezvous sites, and elk movement. For example, when wolves move into an area, on a rendezvous site or den, the tendency is for cattle in the area to leave, if given a choice. Planning helps the Sun Ranch avoid unnecessary interface between their livestock and wolves.

Understanding the different roles of the animals in the pack helps too. Like cattle, a wolf pack has babysitters. Wolves have scouters, an alpha male and an alpha female. Adult pack behavior is a big force and needs to be understood if one is to manage the situation.

When the livestock become hunted, the ranch initiates disturbance practices to deter the wolves. Disturbing begins with less harmful actions, like hazing and non-lethal ammunition creating a loud sound called cracker to incite fear. Fladry consists of an 18-inch (450-mm) high polywire fence, with flags attached to the wire every 12 inches (300mm) and hanging just above the ground. Fladry lines have been used for this



*The Malmbergs discovered that horns were not enough to protect these goats when coyotes forced one of them off the cliff to its death. Introducing a guardian dog helped to address this issue, while not reducing the coyote population.*

purpose for several centuries. They are effective, but only temporarily, as the novelty may soon wear off.

Extended effectiveness can be gained with “turbo-fladry,” which simply adds an electric charge to the flapping straps and reduces habituation. Turbofladry can be used effectively for greater lengths of time. Putting up the fladry lines has been good for Sun Ranch’s community efforts, as people volunteer to help.

### Livestock & Wolves

To inform land and livestock managers on ways to avoid killing wolves, Defenders of Wildlife (DOW) have produced a great resource available to anyone titled, *Livestock & Wolves: A Guide to Nonlethal Tools and Methods to Reduce Conflicts*. You can find this publication at: [http://www.defenders.org/programs\\_and\\_policy/wildlife\\_conservation/solutions/carnivore\\_conservation\\_fund/livestock\\_and\\_wolves.php](http://www.defenders.org/programs_and_policy/wildlife_conservation/solutions/carnivore_conservation_fund/livestock_and_wolves.php). Defenders of Wildlife is a national, nonprofit membership organization dedicated to the protection of all native wild animals and plants in their natural communities.

The guide covers the tools, strategies and tactics practiced by Sun Ranch and more.

The introduction to the guide stresses the importance of addressing the root cause of the problem. First, it asks us to think about the class and species of livestock, the season, the grazing area, and our level of human interaction. The guide addresses non-lethal tools used by Sun Ranch, including fladry, range riders, increased human presence, crackers, rubber bullets, changing grazing sites, changing class and breed of livestock. Different tools work at different times and require constant plan-monitor-control-replan.

The guide advocates removing sick animals and keeping dead animals cleaned up and in a carcass pit. The pit should be at least eight feet deep (2.7m), with straight walls and a fence to keep scavengers out. Dead carcasses are attractants to scavengers and predators.

Finally, if the challenges are just too much, the guide explains programs that can help purchase or exchange your government permits/allotments.

The guide has mention of herding and developing predator-wise livestock. There is growing evidence that cattle running in rough, wild-country are more equipped to deal with predators.

### Preventing Habituation

Suzanne Stone of Defenders of Wildlife says the root cause of the problem is habituation. Instead, the wolf must view killing livestock as a higher risk than killing their natural prey. Therein lies the task of managing the wolf/livestock interface—keeping livestock killing as a high-risk endeavor for the wolf. The best marginal reaction comes by preventing habituation.

Before wolves become habituated, a different disturbance may be needed. This can be rubber bullets, increased human activity, lighting, or even sophisticated alarm systems (radio activated guards or RAG)—the latter will only work if you are dealing with radio collared wolves, as the radio collar signal approaches, the RAG sets off noise and flashing lights. Eventually, live ammunition with compression can offer a stronger reason for wolves to steer clear.

When all of these tactics are exhausted, individual wolves are removed. Wolf removal is determined by the state agency, Montana Fish Wildlife and Parks, in Sun Ranch’s case. The first removal tries to focus on the killers. But it has been noted that wolves from a pack that has killed will return the following season and begin the year killing. One tactic is to kill the wolf next to a collared wolf so they don’t need to recollar a wolf. It has



been observed that a disturbance like lethal removal or trapping and collaring an individual will encourage the pack to leave the area.

However, according to Suzanne Stone, utilizing lethal control in a reactive manner or too aggressively will create more problems than it will solve. She points out that long-term success often depends on stability. One of the more extreme disruptions to stability is killing an alpha female, who is the glue that holds a pack together. With stability gone, the pack often disbands and will then lose out to a new pack. Replacing a pack is not always the best course of action, particularly if the pack in place avoided or rarely killed livestock. Using aggressive lethal control leads to chronic cycles of loss of both livestock and wolves and disrupts stability in most cases. The key question to ask is, “How do we get out of this vicious cycle of habituation, pack removal, re-habituation and loss of stability?”

## Contradictions or Data?

Losses are not limited to killing. Stress from wolf encounters can reduce yearling weight gains by 30 percent, according to James Stuart. The Sun Ranch custom grazes cattle and weight gain is essential to the business. Cattle owners maintain the risk of death loss. With killing and stress it's odd to see that wolves can travel through cattle with little interference. James says there doesn't appear to be any rhyme or reason for when they pass peacefully through and when they kill.

Suzanne suggests there is normally a reason—some kind of a catalyst. Something happened or was recognized by the wolf that they determined this would be a low-risk kill—or they typically won't risk a “first strike” kill. The catalyst is usually a low-risk scavenge or picking off a sick or old animal. However, once flesh is torn and blood is spilled, the pack will sometimes tip into a group-think, mob mentality. Once the frenzy begins, the kill can exceed the pack's needs at times.

James thinks hunger might be plenty of a catalyst. He has witnessed wolves killing healthy, strong, yearlings. They kept the herd bunched and maintained a strong human presence. They paid a wolf rider using a spot light, like during calving, to spend the night with cattle, yet they still lost livestock.

To make the wolves' hunt a little tougher, James changed his class of cattle from yearlings to cow-calf this year, in high-risk pastures, with good results. He said yearlings are so inquisitive and their excitement is infectious, as they follow the wolves around, and intensifies the interface. Mother cows interested in protecting their young bawl, chase the wolves, and keep their distance. James runs the cow-calf herd in high interface areas like the forested and large pastures, where they have less control. It brings an interesting twist to the community dynamics issue. This example demonstrates we can match the class of livestock to the resource.

Suzanne points out that there have been far more calves killed by wolves than yearlings in the Northern Rockies. Canada's experience is more in line with James — far more yearlings killed than calves. Ranchers in Alberta may know why. They noted that their mother cattle are very aggressive in protecting their calves—an instinct that may not be present in cattle who haven't seen wolves for many generations.

## Sorting Out the Evidence

Apparent contradictions seem to highlight two factors. First, when the data bank is skimpy, it can vary widely. When more ranchers make efforts like Sun Ranch to observe, and organizations like Defenders of Wildlife to document and organize the data, we can begin to quantify and qualify the data. More data (a larger sample size) should begin to level out results and offer more predictable results relative to specific actions. For example, we may be able to predict that standard fladry will prevent wolf/livestock interaction as long as a pack hasn't killed livestock. Once a pack has killed



*Cougars and wolves can be more challenging to address than coyotes and smaller predators. However, understanding why these animals kill and addressing the root cause of that problem allows the producer to co-exist with these animals and reduce or eliminate predation losses.*

livestock, the likelihood of standard fladry working to prevent livestock killing may drop to 80 or 20 percent or zero.

That brings us to the second factor. Contradictions appear when we focus on tactics without associating them with a level of habituation. If one rancher says, “Fladry works for me!” And, another rancher says, “That fladry is a waste of time,” it can only mean the tactic was used in different circumstances or with a different level of habituation.

To make better decisions in determining which deterrent to use and when to use it, we can practice Holistic Management's rule to “assume we are wrong” and to clearly define early warning indicators in our monitoring. If the data suggests we have an 80 percent likelihood of deterring a kill with fladry immediately following a kill, we might continue with that form of habituation deterrent.

With that decision, we may identify that our early warning indicator is seeing one wolf, on one occasion, through the fladry line, for example. In that instance, we immediately change our habituation deterrent to “turbo fladry,” or some other deterrent that the data suggests is more effective with a pack that has killed.

However, if the data suggests we only have a 20 percent chance of preventing a kill, following a kill, with standard fladry after a pack has killed, we would most likely change our form of deterrent immediately following the kill. It seems the effectiveness of the tools to prevent habituation is relative to the pack's level of habituation. Making decisions on which deterrent to use without factoring that part of the equation is not a sound decision.

## Who's Your Scapegoat?

Another explanation of seemingly contradictory data is to see the world from a wolf's point of view. The reason wolves prey on the weak, the sick, and the old, is because it is safe. A wolf knows about managing risk through millennia of being a predator and working to make a living.

For example, biologists have documented that wolves can quickly pick out diseased animals from elk herds that are undetectable to humans and target those animals—running past other elk in their focused pursuit of the most vulnerable prey. That makes sense given how wolves interpret their

CONTINUED ON PAGE 12

## Predators—Friend or Foe?

continued from page eleven

world largely through their sense of smell, which is 100 times sharper than ours. Could this be what is going on when we see an apparent kill for no rhyme or reason?

Maintaining the predator/prey interface could result in healthier livestock such as coyotes cleaning up after birth for Bill and flies recycling manure, and wolves culling infection and disease. More diversity and complexity can contribute to stability.

### Concentrate Cattle and Labor

All of the tools and practices preventing habituation will benefit from increased stock density. But, concentrated animals also increase the effectiveness of labor.

Concentrated animals would allow us to easily move to night penning, which has been practiced successfully in Africa for centuries. African Holistic Management practitioners have much experience and knowledge in night penning. Electric fencing can increase flexibility for night penning by keeping predators out and being mobile and temporary.

If we are dealing with smaller livestock, like sheep or goats, this might be our only option if guard dogs are unable to keep the predators at bay. But cattle can learn behavior practices to enable self-sufficiency. Those behavior practices begin with increased stock density. Higher stock density improves the marginal reaction of all these practices and is the best marginal reaction place to start changing animal behavior.

What do we manage on the other side of the equation? Fortunately most wolves hunt and eat wild prey and not livestock—it's a matter of keeping that natural behavior in place by elevating their sense of risk. Jeremy Gingerich of Red Rock Ranch near Dillon, Montana says his bison not only chase coyotes away but also will even run them down and trample them to death. Bison present risk. Can we get livestock to behave in this way? Bill Hancock in Wyoming says we can develop culling practices that will change our cattle behavior.

### Stock Density Key

The root cause of the problem goes back to Holistic Management's missing key, the predator-prey relationship. Rather than preventing interaction between livestock and predators, progress requires developing a functional interaction between the predator and prey. The root cause of the problem seems to be small herds and naïve cattle.

Suzanne points out the disconnect, "Most cattle losses to wolves occur with large cattle operations—not small ones." The small operations are not losing livestock to wolves because they maintain a human presence. The large herd owners have cattle scattered in low stock densities—ripe

for a wolf managing risk.

We tend to think 500 to 1,000 head is a large herd, but maybe we need herds of 10,000 or 20,000. James kept his herd of 1,000 head bunched to one square mile but we need more density for predator protection. No matter what size the herd, the protection factor boils down to stock density. Only with increased stock density, and a sagacious, wry cow aiming her horns so a predator sees risk, will we change behavior in a sustained way. That tension will provide stability better than a rifle. With a rifle, the next generation needs to learn the lessons all over again.

People resist change because they lack a clear motive and/or doubt their ability. Social pressures are providing that motive as is the knowledge that predators bring benefits to a holistically managed ranch. And, efforts like the Sun Ranch offer new insights into our abilities to manage with predators.

If practitioners focus human creativity, labor, and money towards increasing livestock density, the land will benefit from better application of disturbance/recovery ratios. If we focus our efforts on changing livestock behavior, we will benefit with less labor, fewer livestock losses and have a better bottom line. If we are perceived by our future resource base to have managed for more diversity and complexity, we will gain support for this important work. 🌱

## Root Cause of Predation

### HOLISTIC GOAL

*Future Resource Base:* Our community, Congress, the American people, and our customers, desire the presence of predators.

### THE PROBLEM

Predators cut into our economic sustainability both through increased management and labor to prevent loss and the actual loss.

*Why?*—Predators are hungry so they kill livestock.

*Why?*—Because their prey base is not available so they kill livestock.

*Why?*—They have become habituated and have no fear.

*Why?*—Because humans or livestock have not presented a risk to them for generations.

*Why?*—Because we either killed or protected them so there was no generational transfer of risk to succeeding generations.

**Root Cause of the Problem**—Domestic animals (prey) and managers are naïve and predators have no fear.



Here a guardian dog is used in combination with electric netting to protect goats from predators.

