Wolf Resource Guide

HANDS-ON RESOURCE GUIDE TO REDUCE DEPREDATIONS
**Introduction and Thanks**

This Hands-on Resource Guide to Reduce Depredations is meant to be a useful introduction for ranchers and livestock owners to implement effective strategies to prevent wolf depredations.

The CPW Commission has passed regulations that align with US Fish and Wildlife Service guidelines and provide landowners with a wide variety of options and resources to minimize conflict and potential wolf depredation. This includes commonly accepted hazing techniques such as fladry (fencing), range riders, guard animals, and scare devices.

Specific regulations are subject to change through approvals from the CPW Commission; the most recent regulations can be found in [https://cpw.state.co.us/Documents/RulesRegs/Regulations/Ch10.pdf](https://cpw.state.co.us/Documents/RulesRegs/Regulations/Ch10.pdf).

Livestock owners concerned about wolves on their property should contact their local CPW office to work closely with our district wildlife managers on implementing the strategies listed in this guide.

Running livestock in wolf range is challenging. Cost-effective risk management can increase profitability. While there is no silver bullet, there are some proven techniques for reducing risk of wolf-livestock conflict.

The goal of this brochure is to outline different tools that may suit your operation. Your local wildlife agency or other organizations can offer additional help in evaluating and identifying options and may offer cost sharing, materials, or labor to assist your efforts.

Colorado Parks and Wildlife would like to thank Brainerd Foundation, People and Carnivores, Montana Fish, Wildlife and Parks wolf specialists, and the Wildlife Conservation Society for providing CPW with permission to co-brand this useful document in Colorado.

---

**Tool Guide**

The presence of wolves in your area adds additional challenges to ranching. Some of these risk-management tools may be appropriate for use depending on your operation.

There are many resources available to further help you identify and implement the most appropriate strategies to reduce indirect impacts or loss. Consider contacting your local wildlife manager to learn more as they may have additional resources to assist you with cost-share programs, equipment, and list of suppliers.

<table>
<thead>
<tr>
<th>Tool Guide</th>
<th>Pasture Size</th>
<th>Livestock</th>
<th>When it Works Best</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIG</td>
<td>0≤ Acres</td>
<td>Cattle, Horses, Sheep, Goats</td>
<td>Late Spring-Fall</td>
</tr>
<tr>
<td>Livestock Guard Dogs &amp; Donkeys</td>
<td>0 - 1,000 Acres</td>
<td>Cattle, Horses, Sheep, Goats</td>
<td>Yearlong</td>
</tr>
<tr>
<td>Carcass Management</td>
<td>0 ≤ Acres</td>
<td>All Livestock, including Poultry</td>
<td>Spring and Fall</td>
</tr>
<tr>
<td>Riders &amp; Herders</td>
<td>640 ≤ Acres</td>
<td>All Livestock</td>
<td>Yearlong</td>
</tr>
<tr>
<td>Fladry</td>
<td>≥ 640 Acres</td>
<td>All Livestock, including Poultry</td>
<td>Yearlong</td>
</tr>
<tr>
<td>Scare Devices</td>
<td>≥ 60 Acres</td>
<td>All Livestock, including Poultry</td>
<td>Yearlong</td>
</tr>
<tr>
<td>High-Risk Landscapes</td>
<td>0 ≤ Acres</td>
<td>Cattle, Horses, Sheep, Goats</td>
<td>Times of High Wolf Use</td>
</tr>
<tr>
<td>Herd Composition</td>
<td>0 ≤ Acres</td>
<td>Cattle, Horses, Sheep, Goats, Mules</td>
<td>Yearlong</td>
</tr>
</tbody>
</table>

---

We want to thank the original creators of the resource guide.

**Authors:** Nathan Lance, Steve Primm, Kristine Inman  
**Contributors:** Brainerd Foundation, People and Carnivores, Montana Fish, Wildlife and Parks wolf specialists, Wildlife Conservation Society  
**Illustration:** Jason Smith

©Jason Smith

We want to thank the original creators of the resource guide.
Management Intensive Grazing (MIG): Also known as mob grazing, uses higher stocking densities with frequent pasture changes.

Where It Works Best:
Any size pasture
Cattle, sheep, goats, and horses

When It Works:
Yearlong: typically late spring through fall

Advantages:
- Periodic herd management increases human presence, which may discourage wolves from frequenting pastures and aid in early detection of wolves.
- Prompt doctoring of sick or injured stock minimizes high-risk animals.
- Frequent pasture changes make the location of livestock less predictable for wolves.
- MiG practices benefit range health.

Disadvantages:
- MiG requires more labor.
- May require building and moving temporary electric fence.

Considerations:
- Close proximity of cattle may increase risk of disease depending on the time of year MiG is used and the age of livestock.
- MiG takes advantage of stock’s natural response to predators. Stock naturally bunch up in response to predators, making them less vulnerable, and can reduce issues of weight loss.
- Steep terrain may make MiG challenging.

Livestock Guarding Dogs (LGD) are specially bred and reared dogs that bond to and watch over livestock. They watch for potential threats and use escalating aggression to move wolves away.

Where It Works Best:
Up to 1,000-acre pastures
Sheep, goats, horses, and cattle

When It Works:
Yearlong

Advantages:
- Dogs travel with the livestock.
- Dogs provide around-the-clock vigilance.
- Dogs’ scent marking and barking behaviors signal an occupied territory to wolves.
- Dogs alert people to trouble

Disadvantages:
- Dogs are not as effective with highly dispersed livestock.
- Dogs can be viewed as a competitor especially in wolf territories and can be vulnerable to attack.
- Dogs require additional expenses of food and vet care.

Considerations:
- It is important to match the right breed of Livestock Guard Dogs (LGD) with your ranch needs:
  - There are over 30 breeds of livestock guard dogs. The right number and breed of LGDs for your ranch will depend on the size of operation and wolf activity.
  - There are two different behaviors
    - Roamers: LGD breeds that tend to be more oriented toward driving predators away. A good example of these breeds include: Anatolian, Komondor, Turkish Kangal, and Akbash.
    - Tenders: LGD breeds that tend to stick closer to livestock and even attempt to gather up stock when confronted with threats. A good example of these breeds include: Tatra, Maremma, and Pyrenees.
  - Select your LGD for intellect instead of aggression
  - Evaluate and assess how the dogs are working to make adjustments (e.g., dogs, behavior, breed) when needed. When dogs are in close proximity to wolf dens or homesites there is the potential for wolves to view LGD as territorial intruders. During these times, consider keeping LGD and livestock in alternate pastures or increase vigilance of riders.
  - Use at least 3 dogs. Larger groups increase the dogs’ safety and have greater potential to deter wolves.
  - Dogs should be socialized to people for ease of vet care, moving dogs, and encounters with public.
  - Provide dogs with protective collars to reduce mortality in wolf conflicts.
  - Introduce dogs before conflicts arise so they can learn their landscape and establish presence.
  - When used in smaller pastures, you may need to train LGD to electric fences to discourage roaming onto roads or near non-tolerant neighbors.

- Close proximity of cattle may increase risk of disease depending on the time of year MiG is used and the age of livestock.
- MiG takes advantage of stock’s natural response to predators. Stock naturally bunch up in response to predators, making them less vulnerable, and can reduce issues of weight loss.
- MiG practices benefit range health.

- Select your LGD for intellect instead of aggression
- Evaluate and assess how the dogs are working to make adjustments (e.g., dogs, behavior, breed) when needed. When dogs are in close proximity to wolf dens or homesites there is the potential for wolves to view LGD as territorial intruders. During these times, consider keeping LGD and livestock in alternate pastures or increase vigilance of riders.
- Use at least 3 dogs. Larger groups increase the dogs’ safety and have greater potential to deter wolves.
- Dogs should be socialized to people for ease of vet care, moving dogs, and encounters with public.
- Provide dogs with protective collars to reduce mortality in wolf conflicts.
- Introduce dogs before conflicts arise so they can learn their landscape and establish presence.
- When used in smaller pastures, you may need to train LGD to electric fences to discourage roaming onto roads or near non-tolerant neighbors.
Livestock Guarding Donkeys

Donkeys watch over livestock, look for potential threats and use escalating aggression to move predators away.

**Where It Works Best:**
Up to 1,000 acre pastures
Sheep, goats, horses, and cattle

**When It Works:**
Yearlong

**Advantages:**
- Travel with the livestock.
- Provide around the clock vigilance.
- No extra feeding needed, forage with livestock.
- Low cost, minor maintenance.
- Provide an alert presence.
- Not prone to wandering.
- Long life expectancy.

**Disadvantages:**
- Too many donkeys in one pasture may lead to congregating only with each other rather than displaying protective behaviors.
- Are not as effective in larger dispersed herds.

**Considerations:**
- Consider Jennies rather than Jacks.
- Use larger donkey breeds (eg., mammoth donkeys).
- Introduce young donkeys for at least 1-2 weeks to allow bonding with livestock.
- Donkeys can be aggressive toward dogs, so initially limit and supervise their interaction with ranch dogs. Dogs will learn to work around donkeys.

Carcass Management

Removing or disposing of attractants (carcasses) that may lure wolves into close proximity of livestock.

**Where It Works Best:**
Any size pasture
All livestock including poultry

**When It Works:**
Yearlong, typically spring and fall when death loss is greatest.

**Advantages:**
- Reduces potential conflicts by minimizing attractants.
- Most ranches already spend time moving carcasses to a deadpile; the same amount of time can be devoted to staging carcasses for removal by a local contractor to either a carcass composting facility or a landfill that accepts carcasses.

**Disadvantages:**
- Burying carcasses can be difficult in freezing ground.

**Considerations:**
- Consider burying or burning carcasses regularly.
- Reduce access to carcasses or carcass pits with woven wire, electric fence, fladry, or a combination of these tools.
- Community level carcass pickup programs with central disposal or composting sites have proven successful.
- Terrain, road access, or deep snow may make removal difficult.

Range Riders and Herders

Range riders and herders manage herd and range health, herd distribution, and help in early detection of carnivore-livestock interactions.

**Where It Works Best:**
640 acres or greater for cattle, sheep and goats

**When It Works:**
Yearlong

**Advantages:**
- Allows for earlier detection and management of injured, sick, or dead livestock.
- Provides proactive management of livestock distribution in relation to range health as well as carnivore presence.
- Human presence and non-lethal harassment deters wolves.
- Improves information exchange on predator activity between the livestock producer and managing agencies.
- Allows producers to know when preventative efforts need to be stepped up.

**Disadvantages:**
- Limited mobility of a single rider.

**Considerations:**
- Using riders and herders to reduce conflicts can be even more effective if used in conjunction with other tools, especially livestock guard dogs and management intensive grazing.
- Herders live with livestock and range riders spend periods of time with livestock.
- Depending on scale, a rider can cover a number of ranches and even a watershed.
- Range rider effectiveness depends on allotment size, terrain, and distribution and visibility of livestock on the range.
Fladry/Electrified Fladry

Fladry (flagging interspersed on a single strand of twine) is a portable barrier strung around livestock pastures or holding areas. The flagging triggers an innate fear and avoidance in wolves because it is a novel stimulus. By electrifying the fladry, a wolf’s fear response is reinforced with an electric shock.

Where It Works Best:
Any size pasture, typically with enclosures < 640 acres (1 mile per side)
All livestock, including poultry

When It Works:
Yearlong

Advantages:
• Fladry requires relatively small quantities of materials.
• Easily transported, laid out, and erected.
• Requires less planning than a permanent fence.
• Can be stored when not needed.
• Can be reused.
• Especially advantageous when moving livestock frequently and supplies/labor are limited.

Disadvantages:
• May require extra maintenance in heavy snow areas or areas of heavy vegetation growth (as this may result in grounding issues).

Considerations:
• Fladry equipment has limited availability, conservation groups and wildlife agencies may have supplies available for loan.
• Electrification of fladry is not as effective in dry ground areas but including an earth-return-wire (AKA groundwire) can resolve this issue.
• Needs vigilance to keep it maintained and working properly. Wolves eventually habituate to fladry, so it should be moved or electrified to reduce or prevent habituation.
• Ideal for smaller pastures (calving pastures, horse pastures, sheep night pens, and protecting dead-pits).

Scare Devices

Scare devices like motion or radio activated (MAG/RAG) boxes, sirens, strobe lights, pyrotechnics, scarecrows, and radios change wolf behavior by causing fear.

Where It Works Best:
Small pastures/pens (<60 acres) or areas with frequent wolf use for short durations (2-3 months)

When It Works:
Yearlong
All livestock, including poultry

Advantages:
• Certain scare devices (sirens, lights, MAG/RAG boxes) can alert people to the presence of an animal as well as scare animals away.
• Relatively low cost.
• Simple and portable tool.
• Can be used to discourage wolves from placing dens or homesites near livestock.

Disadvantages:
• Wolves may habituate and quickly learn to ignore the device.

Considerations:
• Scare devices may not be welcomed in areas of high human presence.
• May be difficult to obtain due to federal regulations on (pyrotechnics), limited suppliers or manufacturers.
• Ideal for short duration in areas of frequent wolf use.
• Ideal when used in addition to other tools.
• Varying the scare devices can increase effectiveness.
• MAG boxes require radio collars and only work if a radio-collared wolf is present.
• MAG boxes may be more appropriate as they are not affected by steep rocky terrain like RAG boxes are. MAG boxes can be triggered by any motion.
High-risk Landscape Management

Considerations:
- Evening/dusk feeding should start 2 weeks prior to encourage day calving when predators are less active.
- Plan calving to correspond with wild ungulate birth pulse (May-June), thus livestock are not the only vulnerable or high-risk prey on the landscape.
- To increase herd security, utilize high stocking rates for short duration (more Animal Days/Acre) in pastures with good forage in high use wolf travel paths.
- Delay turnout to pastures when wolves are denning or at homesites in or near pastures.
- Consider pastures with low ungulate activity and/or encourage hunting or hazing (check regulations) to disperse localized ungulates.
- Bring into corrals or barn at night.
- Night pen in an electric fence.

Risk of wolf/livestock encounters can be reduced by understanding and adjusting ranching practices during times and areas of high risk. Typically these are areas of high prey abundance (elk calving and wintering ground) and wolf activity (dens).

Where It Works Best:
Any size pasture
Cattle, sheep, goats, and horses

When It Works:
Yearlong; typically in seasons of high ungulate densities or wolf use.

Advantages:
- Lowers risk of depredation and vulnerability of livestock by avoiding high-risk landscapes.
- Maintains use of forage and pastures in high-risk areas by altering the timing of use.

Disadvantages:
- Potentially more labor intensive.
- Requires changes to husbandry practices.

Herd Composition

Mixing different age classes and breeds of livestock reduces vulnerability to predation.

Where It Works Best:
Any size pasture
Sheep, cattle, goat, horses, and mules

When It Works:
Yearlong

Advantages:
- Stronger maternal instincts may reduce vulnerability of young.
- Experienced animals are less likely to flee and more likely to stand their ground, making them difficult for wolves to attack.
- Experienced animals may avoid areas of high predator presence and influence other stock to do the same.

Disadvantages:
- Retaining older, experienced stock primarily for protective purposes may impact profitability.
- Sorting different classes or breeds for shipping/marketing may be an additive chore/cost.
- Horned cattle have associated risks to handlers and dogs.

- Handling younger animals may be more difficult with protective mothers.
- Classes and breeds may self-segregate, operating as independent herds within in the same pasture.

Considerations:
- Mix experienced older age classes with (younger) naive livestock.
- Add a few aggressive or vigilant breeds to your herd.
- Retain and promote livestock with stronger maternal instincts.
- It is riskier to run yearlings or naïve livestock.

Risk of wolf/livestock encounters can be reduced by understanding and adjusting ranching practices during times and areas of high risk. Typically these are areas of high prey abundance (elk calving and wintering ground) and wolf activity (dens).