

Interactions between Livestock and Wildlife in Alaska: Guidelines for Mitigating Risks

Alaska Department of Fish and Game



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Interactions between Livestock and Wildlife in Alaska: Guidelines for Mitigating Risks

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Cover Photo: A nursery group of Dall sheep ewes and lambs on subalpine tundra in early spring. ©2020 Travel Juneau. Used with permission.

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Introduction

With domestic livestock grazing activity on Alaska’s state lands expected to increase, and in support of broader efforts to strengthen food security, grow local economies, and reduce the state’s dependence on external food sources and supply chains, the Alaska Department of Fish and Game (ADF&G) offers the following guidance to assist state land managers in protecting the health of Alaska’s wild ungulate populations. These include species such as Dall sheep (*Ovis dalli*), mountain goat (*Oreamnos americanus*), moose (*Alces alces*), caribou (*Rangifer tarandus*), elk (*Cervus canadensis*), Sitka black-tailed deer (*Odocoileus hemionus sitkensis*), muskox (*Ovibos moschatus*), and bison (*Bison bison*).

Disease transmission between domestic livestock and wild ungulates presents a significant risk to both wildlife and livestock health. Pathogens and parasites can spread through direct contact, airborne particles, shared grazing areas, contaminated forage, soil and water sources, or equipment. Preventing the introduction and spread of disease is essential to sustaining both healthy wildlife populations and productive agricultural operations.

In addition to disease prevention, this document outlines best practices for minimizing interactions between wildlife and livestock. These include habitat considerations and strategies for reducing bear conflicts. Responsible livestock husbandry practices can support the multiple-use goals of state lands—where appropriate—by balancing agricultural development with wildlife conservation.

While ADF&G manages designated Special Areas—such as state game refuges, critical habitat areas, and wildlife sanctuaries—it does not oversee general state lands. For lease applications on state lands under the direction of the Alaska Department of Natural Resources (DNR), ADF&G provides input through DNR’s agency review process. When DNR requests a Grazing Management Plan (GMP) as part of a lease application package, ADF&G staff evaluate the GMP and offer recommendations tailored to regional conditions and species-specific concerns. All input is compiled into a coordinated departmental response to ensure that recommendations are scientifically sound, consistent, and aligned with ADF&G’s mission to protect, maintain, and improve Alaska’s fish and wildlife resources and manage their use.

Key Disease Risks

The following sections present a selection of potential disease risks and do not represent an exhaustive list.

RESPIRATORY DISEASES IN WILD UNGULATES

Wild ungulate species are susceptible to respiratory infections transmitted from domestic livestock, with members of the wild Caprinae subfamily (sheep and mountain goats) facing elevated risks from contact with domestic sheep and goats (ADF&G, n.d.-a; ADF&G n.d.-b; The Wildlife Society and American Association of Wildlife Veterinarians 2015; Wild Sheep Foundation 2024).

Domestic sheep and goats can carry and transmit strains of *Mycoplasma ovipneumoniae* (M. ovi), *Mannheimia haemolytica*, and other respiratory pathogens, which can cause fatal pneumonia in wild sheep (Wild Sheep Foundation 2024) and mountain goats (ADF&G, n.d.-b; Government of Alberta 2021).

If a domestic strain of M. ovi is transmitted to wild sheep or mountain goats, it may spread rapidly due to high transmissibility, the absence of natural immunity, and the infeasibility of any veterinary intervention beyond depopulation.

BRUCELLOSIS AND BOVINE TUBERCULOSIS

Brucella abortus and *Mycobacterium bovis* are bacteria that cause serious diseases, which typically affect domestic cattle and bison but can also cause disease in humans. These pathogens have spread between livestock and wild hoofed animals, especially bison, elk, and deer (Meagher and Meyer 1994, Shury et al. 2015). Although neither disease has been documented in Alaska, they pose a significant risk to wildlife and the domestic livestock industry, which highlights the importance of remaining attentive to the goal of keeping the state free of brucellosis and tuberculosis. *Note: Brucella abortus* is a different species from *Brucella suis*; it is relevant to add that the *Brucella suis* biovar 4 strain is present in Alaska. (Refer to the following section on *Brucella suis* biovar 4.)

BRUCELLA SUIB BIOVAR 4

This is a bacterial strain that causes brucellosis, a contagious disease that is enzootic (naturally occurring) in Alaska caribou. In rare instances, exposure to the bacterium has been detected in muskoxen and moose, and brucellosis has been identified as a potential cause of mortality in these species as well. Brucellosis is zoonotic, meaning it can infect humans, and it also poses a risk to the health of domestic pigs and dogs. (Woodford 2010, Beckmen 2021).

CONTAGIOUS ECTHYMA (ORF VIRUS)

Transmitted from domestic sheep and goats, this disease causes painful lesions; cases of mortality in wild ungulates have been documented in Alaska (Tryland et al. 2018).

MOOSE WINTER TICK (*DERMACENTOR ALBIPICTUS*)

This external parasite is spreading north and west among moose populations, and can also be carried by horses, elk, bison, and cattle. It poses a serious threat to moose and caribou populations (ADF&G, n.d.-a; Woodford 2018).

CHRONIC WASTING DISEASE

Systematic surveillance for Chronic Wasting Disease (CWD) has not been instituted in Alaska, but through casual opportunistic testing, no cases have been detected thus far. However, CWD has been found in cervids in five Canadian provinces, including neighboring British Columbia, and thirty-six U.S. states. Continued surveillance and carcass transport regulations are critical to prevent its introduction (ADF&G, n.d.-c; U.S. Geological Survey 2025).

Disease Risk Mitigation Measures

SPATIAL SEPARATION AND BUFFER ZONES

Separation is a mitigation strategy that helps to prevent disease transmission:

- Maintaining adequate distance between domestic livestock and wildlife is essential to reducing transmission risks and minimizing potential pathways for spread (The Wildlife Society and American Association of Wildlife Veterinarians 2015). Spatial separation is a proven, evidence-based method for reducing the likelihood of outbreaks.
- This approach is especially critical during high-risk periods—such as the Dall sheep, elk, and mountain goat rutting seasons—when animals naturally congregate in large numbers, increasing the potential for disease spread.
- Pathogens can be spread without physical contact—through air, feces, urine, contaminated forage, or shared tools and surfaces.
- Airborne disease transmission can spread over long distances, especially with favorable wind or weather conditions (Christensen et al. 1990, Kanankege et al. 2022).

Wild sheep and mountain goat habitat should not be used for domestic sheep and goat production when there is a risk of disease transmission:

- Where ADF&G identifies high disease risk, domestic sheep and goats—including hobby and companion animals—should not be grazed, transported, or kept within 10 miles of wild sheep and mountain goat habitat that is above 3,000 feet in elevation.
- A 10-mile buffer helps prevent disease and matches expert recommendations. Some studies suggest even wider buffers—up to 31 miles (Government of Alberta 2021, Western Association of Fish and Wildlife Agencies 2025).

For fencing guidelines, consider the following:

- Use durable, well-maintained fencing to prevent contact between domestic and wild ungulates (Manlove 2020). Maintenance includes keeping the perimeter free of snow.
- However, fencing may not be appropriate in all areas. For example, in moose habitat, fencing can disrupt movement corridors or separate cows from their calves. A site-specific assessment is recommended.
- Follow Alaska DNR guidelines for fencing captive ungulates, such as the elk fencing standards outlined in Alaska Statutes (AS) 03.05.075. Additional guidance is available in *Elk Fencing Guidelines* (DNR 2004).

DISEASE SURVEILLANCE AND MONITORING

Disease testing efforts in wild ungulates are ongoing. ADF&G and the Alaska Department of Environmental Conservation (DEC) will continue to conduct risk assessments. Both agencies will maintain their respective disease tracking databases. Existing disease testing regulations and recommendations for domestic livestock will be reassessed with consultation from the State Veterinarian's office on current protocols and requirements. For more information on ADF&G's wildlife disease surveillance and monitoring efforts, visit:

<https://www.adfg.alaska.gov/index.cfm?adfg=disease.diseaselist>.

EMERGENCY RESPONSE PLANNING

Response plans for diseases of concern will incorporate the following:

- Encourage DNR Division of Agriculture to collaborate with livestock producers to ensure they can quarantine their animals, consistent with the regulations of the State Veterinarian's Office (DEC) and U.S. Department of Agriculture (USDA).
- Develop educational materials and outreach strategies to inform landowners and the public about disease-related concerns.
- Coordinate veterinarians, biologists, and landowners to prepare for implementation of response plan(s).

REGULATION AND POLICY CONSIDERATIONS

Effective disease prevention and response require coordination, informed policy, and timely communication among agencies, land users, and the public:

- While disease and weather are beyond wildlife management control, hunting regulations remain an important tool to mitigate risks.
- In 2012, the Board of Game banned the use of sheep and goats as pack animals for hunting due to disease risks.
- Lessees are strongly encouraged to report wild cervid incursions promptly. If free-ranging deer, elk, or other cervids enter a fenced area on a grazing lease on state land, notify ADF&G immediately to assess disease transmission risk and determine appropriate wildlife management actions.
- ADF&G recommends enhancing coordination among wildlife, land management, and agriculture agencies to strengthen disease prevention and response.
- Residents and nonresidents spend considerable amounts of money associated with hunting and wildlife viewing in Alaska. Disease outbreak could result in a loss of hunting and viewing opportunities, which would mean significant economic losses for Alaska's hunting and tourism industries.

ENDORSING ORGANIZATIONS

The following organizations support recommendations aimed at reducing disease transmission between wildlife and domestic livestock:

- The Alaska Chapter of The Wildlife Society
- The Alaska Wild Sheep Foundation and the national Wild Sheep Foundation
- The American Association of Wildlife Veterinarians
- U.S. Department of Agriculture
- Canadian provincial and territorial wildlife management ministries in British Columbia, the Northwest Territories, and the Yukon Territory
- Western Association of Fish and Wildlife Agencies (WAFWA)
 - WAFWA defines “effective separation” as maintaining sufficient spatial and temporal distance between domestic livestock and wildlife to prevent disease transmission.
 - WAFWA discourages the presence of domestic sheep and goats where wild ungulate conservation is a goal. More details can be found in *Recommendations for Domestic Sheep and Goat Management in Wild Sheep Habitat* (WAFWA 2025).

Wild-Domestic Ungulate Interaction Management

In addition to disease risk mitigation, interactions between wild and domestic ungulates must be prevented to minimize the potential for crossbreeding and hybridization, which can impact genetic integrity and wildlife management goals.

RECOMMENDATIONS SPECIFIC TO REINDEER HERD MANAGEMENT

To reduce conflict with caribou and support responsible reindeer management, consider the following practices:

- Build corrals before acquiring reindeer to ensure secure handling.
- Maintain regular communication with ADF&G and provide updates on winter locations and herd size.
- Clearly mark all reindeer during caribou hunting seasons to ensure hunters can easily distinguish them and avoid accidental shootings.
- Relocate reindeer if caribou approach within 50 miles to avoid intermingling, herd loss, and disease transmission.

Minimize Attractants to Reduce Wildlife Conflicts.

To avoid attracting wildlife and prevent dangerous encounters or unnecessary removals, follow these best practices:

- Store all fuel, trash, livestock feed, human food provisions, and other potential attractants securely when not in use. Use containers that are approved as bear resistant. Containers must be made of durable materials such as metal or hard-sided plastic and have tight-fitting lids with secure latches.
 - Secure containers do not eliminate risk; attractants should not be left unattended, especially when no one is present at the site.
- To avoid attracting carnivores, livestock carcasses must be disposed of promptly and appropriately:
 - Dead livestock suspected of having infectious or contagious diseases must be disposed of under the guidance and authorization of the State Veterinarian. Contact your local veterinarian or the Office of the State Veterinarian at 907-375-8215 (DEC 2025).
 - Options include burial, burning, or removal. Consider soil type, water table depth, and equipment impact.
 - Burials should follow DEC and USDA recommendations, which include at least 2 feet of soil cover, 10 feet of separation from groundwater, burial depth of 3 to 10 feet, and the use of lime to reduce odor and deter scavengers (USDA 2023, DEC 2025).
 - GPS tracking can be utilized to monitor livestock and quickly locate carcasses.
- Improper storage of attractants and careless carcass disposal are considered negligent and may be treated as the illegal feeding of wildlife. Cases in which a predator is dispatched as a direct result of unsecured attractants or inadequate carcass disposal do not qualify as Defense of Life and Property.
- Encourage calving near secured or supervised areas to minimize bear predation and improve calf survival rates.
- Use electric fencing with suitable voltage (e.g., 6–10 kV) and maintain a clean fenceline, free of vegetation that can cause electric fences to short-circuit.
- For more information on bear safety and fencing, visit:
<https://www.adfg.alaska.gov/index.cfm?adfg=livingwithbears.main>.
- Report wildlife conflicts through ADF&G's Wildlife Encounter Report:
<https://www.adfg.alaska.gov/index.cfm?adfg=reportwildlifeencounter.main>.

Permits and Authorizations from ADF&G

Some activities require permits from ADF&G:

- Obtain a Special Area Permit for activities within ADF&G-managed Special Areas, including grazing leases or other land use
- Obtain a Fish Habitat Permit for activities affecting fish-bearing waters, including water withdrawals, stream crossings, or bank modifications. Most activities near waterbodies that support anadromous fish require a permit.
 - Domestic livestock in riparian areas can degrade the habitat of fish-bearing streams. Mitigation measures include rotational grazing and the establishment of buffer zones.

Review and Adaptive Management

These guidelines should be reviewed every five years to incorporate new science and field experience.

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