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**To: Regional Managers and Section Heads, Ministry of Environment
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The attached document titled, "guidance for writing objectives and measures for ungulate winter range and specified areas under section 9 and 12 of the Government Actions Regulation (GAR) for range management" has been jointly prepared by the Ministry of Forests and Range (MFR) and the Ministry of Environment (MoE).

This document is intended to assist staff in preparation of objectives and measures for the protection, conservation and maintenance of specified wild ungulate species, their habitat, and forage requirements.

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Guidance for writing objectives and measures for ungulate winter range and specified areas under section 9 and 12 of the Government Actions Regulation (GAR) for range management.

Introduction

This document is a provincial template of recommended objectives and measures that could be used for the protection, conservation and maintenance of specified wild ungulate species, their habitat and forage requirements. This document is intended to assist government staff (such as wildlife biologists and range agrologists who support decision makers). Tenure holders can use this document to guide their input into development of objectives and measures for their area. The template includes background information on recommended objectives and measures. Organization of the template is by ungulate species and by management issue. The included species are established by the minister responsible for the *Wildlife Act* under GAR Section 13.

http://www.env.gov.bc.ca/wld/documents/ugr/UWR_order.pdf This document compliments several other policy and procedure documents that are available to staff involved with the development of GAR orders for specified ungulates. Staff are encouraged to refer to existing supporting documents, take courses offered, and communicate with other staff involved in implementation of Ministry of Environment GAR authorities.

(http://www.for.gov.bc.ca/hth/timten/FRPA_implementation/)

Note: The measures and objectives provided as examples in this document may not cover all ungulate issues and range practices. Additional issues, measures and objectives may be suggested.

Definitions

Early seral plant community: Has a plant community composition that is 0 to 25% similar to the potential natural or climax plant community.

Mid seral plant community: Has a plant community composition that is 25 to 50% similar to the potential natural or climax plant community.

Late seral plant community: Has a plant community composition that is 50 to 75% similar to the potential natural or climax plant community.

Climax or potential natural plant community: The stable plant community that is expected to occupy a site under current climatic conditions without the influence of human disturbance.

Carrying capacity: The average number of livestock and/or wildlife that may be sustained on an area compatible with management objectives for the area.

Defined areas: These are a subset of an UWR area established by GAR order that a GAR Section 9 (2) GWM or GAR section 12 (2) objective will apply to. Defined areas must be mapped. Areas selected (mapped) should be of sufficient size to meet species habitat requirements, balanced with the need to meet the GAR section 2 test and mapped to a resolution that makes common sense.

Specified Areas: These are areas within or outside of an UWR that a GAR section 9 (1) measure will apply to. These areas should be mapped and should be of sufficient size to meet species requirements, balanced with the need to meet the GAR section 2 test and mapped to a resolution that makes common sense.

Legislation

The *Forest and Range Practices Act* (FRPA), the *Government Actions Regulation* (GAR), and the *Range Planning and Practices Regulation* (RPPR) are the applicable legislation for management of crown range and ungulate winter range areas.

Government Actions Regulation (GAR)

The minister responsible for the *Wildlife Act* by order may establish the following:

- an ungulate winter range (UWR) area
- an ungulate winter range objective
- a general wildlife measure to aid in managing winter habitat for a category of specified ungulate species
- a specified area to protect and conserve an ungulate species

Ungulate winter ranges and objectives

The authority to establish UWRs and associated objectives is enabled through section 12 of GAR. This authority has been delegated to the Deputy Minister of Environment. Ungulate winter range areas are map based and have been identified as being important winter range for ungulate species. Objectives within the UWR can be established if the area requires special management. Once an objective has been established it must be addressed in the Range Use Plan or Range Stewardship Plan.

When to use an objective: Objectives are recommended when the intended result is best met through plan content, for example, an adjustment to the grazing schedule to meet a target plant community seral stage.

Effective date of objectives: The RPPR does not specify when a new objective needs to be addressed by way of an amendment to the Range Use Plan or Range Stewardship plan. Therefore to make sure that the objective is addressed, include the effective date within the order (as per section 4 (3) of GAR).

Ungulate winter ranges and General Wildlife Measures

The authority to establish General Wildlife Measures (GWMs) for a UWR is enabled through section 9 (2) of GAR. This authority has been delegated to the Deputy Minister of Environment. Section 9(2) General Wildlife Measures provide specific direction to range agreement holders to protect and conserve the area and habitat conditions within the UWR area.

Note: For application of GWM's for the protection or conservation of a species refer to the section below on Specified areas and General Wildlife Measures, 9 (1) of GAR.

When to use a measure: Measures are recommended when intended results are best met through a constraint or restriction on practices, for example, limiting livestock use on shrubs.

Effective date of measures: Range practices must be consistent with the measure by January 1 following the establishment of the measure.

Specified areas and General Wildlife Measures

Sec 9(1) of GAR can be used to specify an area and to establish general wildlife measures to protect and conserve a species within the specified area. Section 9(1) measures can apply to areas inside or outside of UWR areas and may also be used to address issues such as animal health or well being.

Section 10 of the Range Planning and Practices Regulation (RPPR)

The RPPR outlines the objectives set by government for wildlife as follows:

- (a) Maintain or promote sustainable, healthy, viable, productive and diverse wildlife populations and their associated habitat;
- (b) Minimize disturbance during critical periods to wildlife or to wildlife habitats;
- (c) Manage the risk of interaction between predators and livestock.

Summary of GAR authorities dealing with Ungulate Winter range and specified areas

UWR		Specified area	
GWM	Objective	GWM	Objective
9(2) protect or conserve the area	12(2) area requires special management	9(1) protect or conserve the species	No provisions

Carrying capacity of the resource, managing wild and domestic ungulate populations and application of GAR authorities

Successful application of GAR authorities is best achieved in areas where wild and domestic ungulate populations combined do not exceed the carrying capacity of the resource base. It would be impractical to implement a GAR order for livestock if the order is not achievable due to overstocking by wild and domestic ungulates. This issue is better addressed by first managing population numbers.

GAR authorities and wildlife safe fences

The Ministry of Forest and Range has fence construction standards to construct a fence on Crown range. These standards include many wildlife safe features. Additional fence standards may be required to reduce injury to wildlife when attempting to go under, through or over fences on Crown range. This may include use of visible droppers, top rails, minimum bottom wire heights, and maximum top wire heights. Use of wildlife safe fences is important in areas where wildlife congregates or use travel corridors. The

District Manager may include wildlife safe fence standards in the fence approval document and therefore no additional measures are recommended in this document.

Examples of Objectives and General Wildlife Measures that could be proposed for special management of categories of ungulate species

Mule deer (may also apply to black-tailed deer)

The winter diet of mule deer is dependent on where it lives. Favoured winter food includes Douglas fir, lodgepole pine, juniper, aspen, red osier dogwood, willow, western red cedar, saskatoon, oregon grape, willow, redstem ceanothus, subalpine fir, snowbrush, lichens and grasses. On drier sites, winter diets may include sagebrush, antelope brush and pasture sage.

1. Shrub production and availability

Discussion:

Trees and shrubs make up the bulk of the winter diet although grasses are consumed when available. Winter survival is contingent on there being enough browse material available above the snow and accessible through the snow to meet the survival nutrient requirements. Trees, including litter fall primarily from Douglas-fir, lichen and shrubs within the coniferous forest canopy are an important source of food during deep snow and cold periods. There is a trade off between achieving adequate thermal cover which is often greater in older stands of coniferous forests and browse supply which has higher availability in deciduous stands and open areas. Different sites have different capability to grow palatable shrubs. Shrub production or shrub cover targets should be site specific. Shrub production is affected by forest cover and open canopy forests will have higher shrub production than similar sites with closed canopy.

Browsing by livestock can affect shrub productivity by lowering vigour, creating short stature plants and by shifting species composition to less palatable and less preferred species. Browsing that removes the current year's growth of leaves, twigs and branches also reduces available browse for wildlife.

Range Use Plans and Stewardship Plans (RPPR section 13 and 14) may, if required by the Minister of Forest and Range, include a description of the plant communities and how they will be established or maintained. A GAR UWR objective describing specific shrub communities in defined areas may also be desirable where browsing by livestock within these plant communities would have a direct impact on the winter survival of ungulates.

a. Objective: GAR 12(2)

1. Maintain or establish late seral shrub community.

b. Measure: None required, the issue should be addressed by the objective.

2. Shrub use by livestock

Discussion:

Browsing of shrubs by livestock reduces shrub availability to wildlife and may reduce future shrub production when the combined use of livestock and wildlife exceeds the capacity of shrubs to recover following browsing. RPPR section 29 1) c) limits browsing of shrubs by livestock to 25% of the current annual growth unless another amount is specified by the Minister of Forest and Range. Within ungulate winter range areas browse use levels less than 25% may be required to maintain sources of winter shrub supply for deer on most sites. Limiting use by livestock to 10% of the current annual growth allows for some incidental use by livestock, while ensuring browse availability for wildlife. On sites where shrub production is very high and is the main livestock forage, higher than 10% browse use by livestock may not impact shrub supply for over wintering wildlife.

a. **Objective:** No GAR objective required, the issue should be addressed by the measure.

b. **Measure:** GAR 9(2)

1. Limit shrub use by livestock to 10% annual growth by species (list the species that this will apply to)

Note: This measure could apply to the entire UWR or to a defined area.

3. Displacement due to the presence of livestock or herding practices

Discussion:

Deer that are not accustomed to livestock may be displaced from the specified area (GAR 9.1) when livestock are present. In places where displacement does occur, a measure can be considered that would require adjustment to the grazing schedule so that livestock will not be on a specified area during the winter.

a. **Objective:** 9.1 does not allow for the establishment of objectives

b. **Measure:** GAR 9(1)

In a specified area:

1. No livestock permitted from (defined start date) to (defined end date).

4. Use of grass by livestock while deer are selecting grass

Discussion:

For a short period in the early spring deer diets change from a diet of Douglas-fir and shrubs, to a diet of primarily grass species. The areas where this happens are generally steeper, south facing slopes that lose snow and start to green up in the late winter/early spring. Grazing by livestock during this time could limit availability of grass to the point of limiting survival of deer. While the timing of use by deer on

these areas is generally earlier than the majority of cattle turn-outs in B.C., this issue can be addressed in areas where it applies by establishing a measure. The time period the measure applies to could be a fixed date, or a physiological stage of plant growth such as the occurrence of leaf-out of shrubs could be used to define a variable date.

a. **Objective:** 9.1 does not allow for the establishment of objectives

b. **Measure:** GAR 9(1)

In a specified area:

1. No livestock use during the deer grass diet period from (defined start date) to (defined end date)

Or, alternatively:

2. No livestock use during the deer grass diet period from (defined start date) until shrub leaf out has occurred. (list shrub species that this would apply to)

Elk

Winter range areas for elk include low elevation valley bottoms and south and south-western slopes where snow levels are reduced. Winter foraging habitat for elk is generally in open canopy forest areas including Douglas-fir, pine, and aspen stands where they have thermal cover and in open windblown grassland areas where shrubs and dry bunchgrasses predominate. Elk, primarily grazers, generally consume a higher proportion of grasses and forbs than shrubs however they are able to shift their diet between plant groups depending on location, depth of snow and availability of forage species.

Many historical elk winter ranges have been settled by humans and grazed by livestock. This creates conflict as elk rely on these areas for winter survival. In some areas of the Province such as in the Kootenays, elk populations and livestock grazing occur on the same land base. Given the overlap in forage preference between livestock and elk, managing population numbers to match the carrying capacity of the resource base is a critical step in solving the land use conflict. Setting measures and objectives for livestock use will ensure that the winter needs of elk are managed for.

1. Plant community

Discussion:

"Late seral plant communities" is identified in the RPPR objectives for biodiversity. An objective to achieve or maintain late seral conditions generally allows for some level of grazing by livestock while meeting other targets such as maintenance of desirable deep rooted perennial species, adequate litter cover and water holding capacity of soils. In some areas of the Province joint use by livestock and wildlife exceeds the forage supply and late seral conditions can not be attained through range practices alone. Where this occurs, setting an objective for late seral conditions through a GAR order is not appropriate.

Where livestock and wildlife population allocations are consistent with attaining late seral conditions then a GAR order could be used to establish or maintain late seral conditions.

Note: include all layers of the plant community.

a. Objective: GAR 12(2)

1. Maintain or establish late seral plant community.

b. Measure: None required, the issue should be addressed by the objective.

2. Displacement due to the presence of livestock or herding practices.

Discussion:

Some studies indicate that elk on winter ranges are susceptible to disturbance by humans and cattle. The occasional disturbance may not be harmful but continued disturbance may force elk from their winter areas and stress animals. Where livestock grazing is causing displacement of elk from their winter ranges a measure may correct this.

a. Objective: 9.1 does not allow for the establishment of objectives

b. Measure: GAR 9 (1)

In a specified area:

1. No livestock permitted from (start date) to (end date).

3. Shrub use by livestock

Discussion:

Elk consume shrubs year round as part of their diet however during the winter months use of shrubs may become more important when and where grasses and forbs are limited in supply and quality.

a. Objective: No GAR objective required, the issue should be addressed by the measure.

b. Measure: GAR 9(2)

1. Limit shrub use by livestock to 10% annual growth by species (list the species that this will apply to) **Note:** This measure could apply to the entire UWR or to a defined area.

4. Forage use by livestock

Discussion:

Elk are predominantly grazers. Grasses and sedges are an important part of their diet even in winter. Where livestock grazing occurs on UWR areas, leaving a standing crop of suitable grass and sedge species in the fall is important to the winter survival of elk. Grass above snow levels is important for elk survival. This may be achieved through

managing for a specified stubble height following livestock use or with utilization targets. As per GAR section 2 test, consider limiting the area that a measure or objective would apply to. The constraints on a tenure holder increase with the increase in area where the measure or objectives would apply.

a. **Objective:** No GAR objective required, the issue should be addressed by the measure.

b. **Measure: GAR 9(2)**

1. Stubble heights must not be less than (height in cm) for species listed. (list species). For example Bluebunch wheatgrass: 25 cm, Rough fescue: 25cm. **Note:** Apply stubble heights to defined areas within the UWR.

Or alternatively:

2. Use by livestock must not exceed x% of current year's growth. (list species) **Note:** the percentage of use should consider forage supply and seral stage. Apply to defined areas within the UWR.

For 2 above, the recommended utilization limits (X%) by seral stage are:

Early seral: combined use by livestock and wildlife: 0-16%.

Mid seral: combined use by livestock and wildlife 17-34%

Late seral: combined use by livestock and wildlife: 35-45%

Bighorn Sheep

Bighorn sheep are primarily grazers and in winter consume cured bluebunch wheatgrass and fescue as well as other available grasses. Most herds spend the winters on low elevation bunchgrass areas. A few isolated herds winter on windblown alpine areas.

1. Plant community

Discussion:

Winter forage for Bighorn sheep is more accessible and abundant in late seral plant communities however sheep have the potential to convert and maintain earlier seral stage plant communities. Generally this occurs in areas where sheep congregate or use heavily such as near their escape terrain. Where this happens range practices will not be able to change the seral stage.

a. **Objective:** GAR 12(2)

1. Maintain or establish late seral plant community

b. **Measure:** None required, the issue should be addressed by the objective.

2. Herbage use by livestock

Discussion:

Migratory patterns of Bighorn sheep typically follow changes in elevation depending on availability of forage and escape terrain and on snow accumulation. Lower elevation areas are used in winter. Sheep migrate to higher elevations in spring. Winter range areas are those places that will have less snow during deep snow winters. It is important that the grass in these areas be taller than the snow depth. Summer and fall use by livestock should be light enough to leave stubble taller than the snow depth and spring grazing should be a short enough duration to allow growth of grass to be taller than snow depth at the end of the growing season. Summer and fall grazing by livestock could be addressed through a measure, and spring use through an objective.

Defined Areas

Note: As per GAR section 2 test, consider limiting the area that a measure or objective would apply to. The constraints on a tenure holder increase with the increase in area where the measure or objectives would apply.

a. Objective: GAR 12(2)

1. Spring use of (defined area) will be scheduled and limited so that key bunch grass height will be **x cm** (for example 20 cm tall) at the end of the growing season on an average year. **Note:** This does not apply to lambing areas, see 3 for lambing areas.

b. Measure GAR 9(2)

1. Summer and fall use of (defined area) will leave stubble heights of key bunchgrass species high enough, not less than **x cm** (for example 20 cm) for visibility above deep snow.

General Ungulate Winter Range Area

Standard safe levels of use may be applied to these areas to maintain or improve range condition. For a list of recommended stubble heights by species refer to: MFR Publication Rangeland Health Brochure 6, Applying Best Stubble Heights on Rangelands.

a. Objective: No GAR objective required, the issue should be addressed by the measure

b. Measure GAR 9(2)

1. Use will leave stubble heights of key bunchgrass species high enough, not less than **x cm** for visibility above deep snow.

3. Exclusion of livestock

Discussion:

Bighorn sheep that are not accustomed to livestock may be displaced from the specified area (GAR 9.1) when livestock are present. In places where displacement does occur, a measure can be set which may require adjustment to the grazing schedule so that livestock will not be on a specified area during the winter. Exclusion may also be required due to livestock use of forage that is required by sheep.

a. **Objective:** No GAR objective required, the issue should be addressed by the measure.

b. **Measure:** GAR 9(1)

In a specified area:

1. No livestock permitted from (defined start date) to (defined end date).

4. Harassment during lambing period

Discussion:

Bighorn sheep seek out areas within their migratory ranges that provide escape terrain and a forage supply. Specific lambing areas should be defined and mapped or described so that they are easy to identify. Livestock grazing of these areas should be avoided during the lambing period.

a. **Objective:** No GAR objective required, the issue should be addressed by the measure.

b. **Measure:** Sec 9(1)

1. No livestock in the lambing area during lambing time.

5. Forage use of early spring grass by livestock

Discussion:

For a short period in the early spring Bighorn sheep diets are high in new grown grass instead of grass from the previous growing season. At this time sheep are vulnerable to forage shortages even if the previous year's grass is available. Grazing by livestock during this time could limit availability of grass to the point of limiting sheep survival. To address this issue the areas where it applies should be defined and the measure used for the defined area. The time period the measure applies to could be a fixed date or it could be based on plant phenological characteristics such as leaf out of shrubs to define a variable date.

a. **Objective:** No GAR objective required, the issue should be addressed by the measure.

b. Measure: GAR 9(2)

1. No livestock use on the defined area during new grass growth diet period. This period is (fixed dates) or (from snow free time period until shrub leaf out.)

6. Disease transmission from domestic livestock

Discussion

There is an increased body of information supporting the risks associated with disease transfer from domestic sheep and goats to wild sheep. The Wild Sheep Working Group with professional members from Canada and the US support the separation of domestic sheep and goats from wild sheep as the primary management goal. (Refer to their recommendations June 21, 2007) Consistent with these recommendations, within a specified area a measure could be ordered that prohibits domestic sheep and goats. This would not address domestic sheep on private land. Alpacas and Llamas carry some of the same disease organisms and may also be a risk to wild sheep.

- a. Objective: 9.1 does not allow for the establishment of objectives

b. Measure: GAR 9(1)

In a specified area:

1. No domestic sheep, domestic goats, llamas and alpacas. Note: The specified area could be different than the UWR.

Thinhorn Sheep (Stone's and Dall's sheep)

Thinhorn sheep are found in the northern part of BC. Habitat consists primarily of steep cliffs, rocky outcrops and nearby open grass and sedge meadows in alpine and subalpine areas depending on the subspecies of sheep. Thinhorn sheep are primarily grazers using grasses, sedges, forbs, mosses and lichens as well as some shrubs.

1. Herbage production

Discussion:

Herbage production should be looked after by managing for late seral plant communities in section 2.)

- a. Objective: No GAR objective required, the issue should be addressed by maintaining the plant community in 2.
- b. Measure: None required, the issue should be addressed by maintaining the plant community in 2.

2. Plant community

- a. Objective: GAR 12(2)

1. Maintain or establish the plant community in a late seral stage.
 - b. Measure: None required, the issue should be addressed by the objective.
3. Herbage use by livestock

Discussion:

Winter range areas are those places that will have less snow during deep snow winters and which will maintain the sheep herd during winter foraging. It is important that the grass in these areas be taller than the snow depth. Summer and fall use should be light enough to leave stubble taller than the snow depth and spring grazing needs to be short enough in duration to allow growth of grass to be taller than snow depth at the end of the growing season. Summer and fall grazing could be addressed through a measure and spring use through an objective.

Defined Areas:

Note: As per GAR section 2 test, consider limiting the area that a measure or objective would apply to. The constraints on a tenure holder increase with the increase in area where the measure or objectives would apply.

- a. Objective: GAR 12(2)
 1. Spring use of (defined area) will be scheduled and limited so that the height of key grasses will be at least x cm tall at the end of the growing season (for example 20 cm) on an average year. Note: This does not apply to alpine areas, critical use areas, and lambing areas, see 4, 5 and 6 for those.
 - b. Measure: GAR 9(2)
 1. Summer and fall use will leave stubble heights high enough, not less than x cm, (for example 20cm) for visibility with deep snow.
4. Alpine herbage use

Discussion:

Incidental use is all that can be tolerated in these areas in order to retain most of the forage for thinhorn sheep use. Stubble heights have not been specified because of the variability of heights among species in alpine areas. The measure may not need to be applied to all of the alpine areas within the UWR. It could be limited to defined areas.

- a. Objective: No GAR objective required, the issue should be addressed by the objective.
- b. Measure: GAR 9(2)
 1. Use of grasses, sedges and forbs by livestock will not exceed 10% of the current year's growth within the defined area.

5. Exclusion of livestock from escape terrain, lambing areas and adjacent foraging sites.

Discussion:

In BC, horses may graze in areas where Thinhorn sheep ranges occur. Competition for forage and displacement of Thinhorn sheep from their ranges may occur as a result of grazing by domestic livestock. In order to retain forage for Thinhorn sheep in essential areas it may be necessary to exclude livestock use from these areas.

- a. **Objective:** No GAR objective required, the issue should be addressed by the measure.
- b. **Measure:** GAR 9(2)
 - 1. No livestock use of defined area.

6. Harassment during lambing period

Discussion:

Thinhorn sheep ewes seek out rocky areas near winter ranges that provide escape terrain and a forage supply. Lambing areas will have to be specified and mapped or described so that they are easy to identify. Livestock grazing of these areas should be avoided during the lambing period.

- a. **Objective:** No GAR objective required, the issue should be addressed by the measure.
- b. **Measure:** GAR 9(1)
 - 1. No livestock in the lambing area during lambing time.

7. Disease transmission from domestic livestock

Discussion:

Thinhorn sheep have mostly escaped the outbreaks of disease that have occurred with the more southerly Bighorn sheep. This may be due to the remoteness of most of the Thinhorn sheep habitat and the lack of exposure to domestic sheep, goats, llamas and alpacas. The high risk of potential exposure to disease provides cause for maintaining separation from these species. For this order to be effective the area should be specified and mapped or described.

- a. **Objective:** No Gar objective required, the issue should be addressed by the measure.
- b. **Measure:** GAR 9(1)
In a specified area:
 - 1. No domestic sheep, domestic goats, alpacas or llamas. **Note:** The specified area could be different from the UWR.

Mountain Goat

Mountain goats are usually found in rugged mountain areas with steep cliffs, rocky bluffs, narrow ledges, talus and rock slopes. They are considered non-migratory but they do move from higher elevation areas in summer to lower elevation in winter depending on snowfall. Foraging areas border their escape terrain. In summer their diet consists of alpine and sub alpine grasses, sedges, rushes and forbs. In winter they consume more shrubs, conifers, lichens and mosses. Mountain goat foraging areas likely do not overlap with domestic livestock grazing areas but packing activities may cross into goat areas.

1. Harassment during kidding period

Discussion:

Goats seek out protected ledges in steep rocky areas near winter ranges that provide escape terrain and a forage supply. Livestock grazing and packing within these areas should be avoided during the kidding period. Natal range areas should be specified and mapped or described so that they are easy to identify.

a. **Objective:** No GAR objective required, the issue should be addressed by the measure.

b. **Measure:** GAR 9(1)

1. No livestock in the natal area during kidding time.

2. Disease transmission from domestic livestock.

Discussion:

The risk of potential exposure to disease provides cause for maintaining separation of domestic sheep, goats, alpacas and llamas from mountain goats. For this order to be effective the area should be specified and mapped or described.

a. **Objective:** No Gar objective required, the issue should be addressed by the measure.

b. **Measure:** GAR 9(1)

In a specified area:

1. No domestic sheep, domestic goats, alpacas or llamas. **Note:** The specified area could be different from the UWR.

Moose

Moose are primarily browsers. Important shrubs and trees include willow, red osier dogwood, paper birch, cottonwood, aspen, subalpine fir, and high bush cranberry. Moose will move seasonally between winter/spring ranges and summer ranges. Winter/spring ranges are generally lower elevation or lower snowfall areas however moose have capacity to forage in fairly deep snow and therefore may stay at mid elevations during lower snowfall winters.

1. Shrub production

a. Objective: GAR 12(2)

1. Maintain or establish a late seral shrub community.

b. Measure: None required, the issue should be addressed by the objective.

2. Shrub use by livestock

a. Objective: No GAR objective required, the issue should be addressed by the measure.

b. Measure: GAR 9(2)

1. Limit shrub use by livestock to 10% annual growth by species (list the species that this will apply to)

Note: This measure could apply to the entire UWR or to a defined area such as class 1 and 2 critical winter range areas.

Caribou

Caribou are grazers consuming grasses, sedges, horsetail, forbs and leaves of willow and dwarf birch in spring, summer and fall. In winter their primary food source is lichens. Overlap with livestock grazing is primarily in guide outfitting areas where horse grazing and packing activities occur. In these areas, disturbance and displacement may be the primary concern.

1. Displacement due to disturbance by presence of livestock or herding practices.

Discussion:

Where livestock grazing and or packing is causing displacement of caribou from their winter ranges an objective or measure may be necessary to correct this.

a. Objective: 9.1 does not allow for the establishment of objectives

b. Measure: GAR 9(1)

In a specified area:

1. No livestock permitted during a defined period.

Appendix

A. Section 9 and 12 of the Government Actions Regulations

General wildlife measures

- 9 (1) The minister responsible for the *Wildlife Act* by order may establish a general wildlife measure, to be applied to a specified area, for a category of species at risk, regionally important wildlife or specified ungulate species, if satisfied that
- (a) the measure is necessary to protect or conserve the species in the category in the area to which the measure relates, and
 - (b) this regulation or another enactment does not otherwise provide for that protection or conservation.
- (2) The minister responsible for the *Wildlife Act* by order may establish a general wildlife measure for a wildlife habitat area or an ungulate winter range if satisfied that
- (a) the measure is necessary to protect or conserve the wildlife habitat area or ungulate winter range, and
 - (b) this regulation or another enactment does not otherwise provide for that protection or conservation.

Ungulate winter ranges and objectives

- 12 (1) The minister responsible for the *Wildlife Act* by order may establish an area as an ungulate winter range if satisfied that
- (a) the area contains habitat that is necessary to meet the winter habitat requirements for a category of specified ungulate species, and
 - (b) the habitat referred to in paragraph (a) requires special management that is not otherwise provided for under this regulation or another enactment.
- (2) The minister responsible for the *Wildlife Act* by order may establish an ungulate winter range objective for an ungulate winter range if satisfied that the ungulate winter range requires special management that is not otherwise provided for under this regulation or another enactment.

B. List of some important browse species		
Common Name		
Tall Shrubs (>1.5 m)	Medium Shrubs (0.5 – 1.5 m)	Small Shrubs (<0.05 m)
Black Twinberry	Baldhip Rose	Pasture sage (Prairie Sagewort)
Choke Cherry	Big sagebrush	Tall Oregon-grape
Douglas Maple	Bitter-brush	
High bush Cranberry	Black Gooseberry	
Pin cherry	Common Snowberry	
Red-osier Dogwood	Nootka Rose	
Saskatoon	Prickly Rose	
Scrub Birch	Redstem Ceanothus	
Trembling Aspen	Wolf-willow	
Willow	Wood's Rose	