

ORDER – Ungulate Winter Range
6-009

Moose –Kalum TSA, Cascadia TSA, Pacific TSA, TFL 1 and TFL 41.

This order is given under the authority of sections 9(1), 9(2), and 12(1) of the *Government Actions Regulation* (B.C. Reg. 582/2004) (GAR).

1. The Regional Executive Director, Skeena region, of Forests, Lands and Natural Resource Operations, Skeena Region, being satisfied that
 - i. the following area contains habitat that is necessary to meet the habitat requirements for moose (*Alces alces*); and
 - ii. the habitat requires special management that is not otherwise provided for under GAR or another enactment;

orders that:

- a) the area shown in the map set out in the attached Schedule A (U-6-009) and contained in the Ungulate Winter Range (UWR) spatial layer stored in the Geographic Warehouse (WHSE_WILDLIFE_MANAGEMENT.WCP_UNGULATE_WINTER_RANGE_SP) are established as ungulate winter range U-6-009 for moose. The centre point of the line on the attached Schedule A is what establishes the UWR boundary; and
- b) if there is a discrepancy between the areas shown in the map set out in the attached Schedule A and the UWR spatial layer stored in the Geographic Warehouse (WHSE_WILDLIFE_MANAGEMENT.WCP_UNGULATE_WINTER_RANGE_SP), the areas as detailed in the UWR spatial layer will take precedent; and
- c) pursuant to section 7(3) of the *Forest Planning and Practices Regulation* (FPPR), the person(s) required to prepare a forest stewardship plan are hereby exempted from the obligation to prepare results or strategies in relation to the objective set out in section 7(1) of the *Forest Planning and Practices Regulation* (FPPR) for moose in the portion of the Kalum TSA, Cascadia TSA, Pacific TSA, TFL 1 & 41 covered by this Order.

2. The Regional Executive Director of Forests, Lands and Natural Resource Operations, Skeena Region, being satisfied that
 - i. the general wildlife measures (GWMs) described below are necessary to protect or conserve moose and moose habitat and
 - ii. GAR or another enactment does not otherwise provide for that protection or conservation;

orders that:

- a) the GWMs outlined in Schedule 1 are established for UWR U-6-009; and
- b) the GWM 8 outlined in Schedule 1 is applied to the area specified in that GWM.

Schedule 1 – General Wildlife Measures

In this schedule:

- a) Words and expressions not defined in this order have the meaning given to them in the Forest and Range Practices Act (FRPA) and the regulations made there under, unless context indicates otherwise.
- b) **Regeneration delay** is defined as in Ministry of Forests and Range Glossary of Forestry Terms in British Columbia March 2008: The period of time between harvesting and the date at which an area is occupied by a specified minimum number of acceptable well-spaced trees.
- c) **Moisture Regime** (subhygric to subhydric) : refer to Field Manual for Describing Terrestrial Ecosystems.
- d) The minimum size for a silvicultural treatable unit is:
 - One hectare for pure subhygric to subhydric sites;
 - Two hectares of noncontiguous subhygric to subhydric sites within ecosystem complexes where the individual sites are greater than 0.25 ha and such sites comprise 20% or more of the ecosystem complex area.
- e) The minimum size for a willow or red-osier dogwood complex is:
 - One hectare for pure willow and/or red-osier dogwood sites;
 - Two hectares of noncontiguous willow and/or red-osier dogwood sites within ecosystem complexes where the individual sites are greater than 0.25 ha and such sites comprise 20% or more of the ecosystem complex area.
- f) **Thermal Cover** is defined as canopy cover that moderates air temperature which results in cooling during the summer and a reduction of wind chill in the winter.
- g) **Security Cover** is defined as sufficient vegetation cover and/or terrain features that prevent displacement or disturbance behavior in moose, despite adjacent activities or predator movement that might otherwise elicit these behaviours.
- h) **Mainline Road** is an artery road providing access to a watershed or a given geographic area. A mainline road is usually a long-term permanent road that may be used continuously or intermittently.
- i) **Deactivated** refers to either partial or complete treatment of roads and trails with the intent to deter motor vehicle access, while taking into account site specific operating constraints.
- j) **Motor Vehicle** means a device in, on or by which a person or thing is being or may be transported or drawn, and which is designed to be self-propelled, and includes an ATV or snowmobile, but does not include:
 - (a) a device designed to be moved by human, animal or wind power,

- (b) a device designed to be used exclusively on stationary rails or stationary tracks, or
- (c) a boat propelled by motorized power.

k) **Moose Winter Range Management Units** are defined in the spatial file contained in the Ungulate Winter Range (UWR) spatial layer stored in the Geographic Warehouse (WHSE_WILDLIFE_MANAGEMENT.WCP_UNGULATE_WINTER_RANGE_SP), under the field name MWR_MU, identified as being the Upper Skeena, Copper, Nass, Kitsumkalum, Mid Skeena and Kitimat moose management units.

1. No timber harvesting is permitted within willow and red-osier dogwood complexes within the portion of the Kalum SRMP shown in the map set out in the attached Schedule A (U-6-009).
2. Less than 20% of the area of any given cutblock shall be more than 100 metres away from adjacent mature forest cover for snow interception.
3. Maintain, enhance or restore moose forage production, post-timber harvest, on all subhygric to subhydric sites that are large enough to be considered a silvicultural treatable unit.
4. Security cover within or adjacent to cut blocks must be maintained and at least 80% of the security cover shall be separated by no greater than 200 metres.
5. Retain existing security cover directly adjacent to subhygric to subhydric sites that are large enough to be considered a silvicultural treatable unit that contain willow and red-osier dogwood as the main shrub species.
6. Retain greater than 30% of the area in each moose winter range management unit as mature + old forest for snow interception and thermal cover with distribution weighted to willow and red-osier dogwood forage area adjacency.
7. Variances to GWM 6. are permitted as follows:
 - (a) Kitimat moose winter range management unit: allow variance to no less than 20% mature + old forest while working towards the targeted management objective of >30%;
 - (b) Mid-Skeena moose winter range management: allow variance to no less than 28% mature + old forest while working towards the targeted management objective of >30%; and
 - (c) for all moose winter range management units, and to ensure no timber supply impact due to the targeted management objective of >30% mature + old forest: variance is acceptable but shall be limited to no more than is necessary to ensure no timber supply impact due to the target.

8. All forest development roads, excluding mainlines, within 500 metres of a moose winter range must be deactivated following achievement of regeneration delay or within 1 year following harvest completion date by cutting permit area.
9. All forest development roads, excluding mainlines, within moose winter range must be deactivated following achievement of regeneration delay or within 1 year following harvest completion date by cutting permit area.
10. Variance of GWMs 1-9 are permitted under a moose winter range plan prepared by a qualified registered professional and reviewed jointly by the province of British Columbia and respective First Nations.



Signed this 22nd day of April, 2015
Anthony Pesklevits, Acting Regional Executive Director
Ministry of Forests, Lands and Natural Resource Operations
Skeena Region

Appendix 1 – General Information

The following information is intended to provide background information and support to the legal order establishing UWR 6-009. This appendix is not part of the legal order.

1. As per section 2(2) of the *Government Actions Regulation*, the order entitled “ORDER – Ungulate Winter Range # 6-009” does not apply in respect of:
 - a. any of the following entered into before the order takes effect:
 - i. a cutting permit;
 - ii. a road permit;
 - iii. a timber sale licence that does not provide for cutting permits;
 - iv. a forestry licence to cut issued by a timber sales manager under section 47.6(3) of the *Forest Act*;
 - v. subject to subsection (3), a minor tenure.
 - b. a declared area;
 - c. areas described in section 196(1) of the FRPA; and
 - d. areas referred to in section 110 of the FPPR.

In these instances the requirement to comply with the order and the general wildlife measures does not apply.

2. Authority to consider an exemption from these general wildlife measures is provided in section 92(1) of the *Forest Planning and Practices Regulation*, section 79(1) of the *Woodlot Licenses Planning and Practices Regulation* and section 36(3) of the *Range Planning and Practices Regulation*. An exemption may be provided if the Minister’s delegate is satisfied that the intent of the general wildlife measure will be achieved or that compliance with the provision is not practicable, given the circumstances or conditions applicable to a particular area.

An exemption application should be submitted to the Minister’s delegate (Director, Resource Management – Ministry of Forests, Lands and Natural Resource Operations), with a rationale describing the nature of the problem and options to integrate UWR conservation with proposed forest and/or range practices. A spatially explicit strategy for conservation of moose winter range habitat will assist in timely consideration of the matter when submitted to the Minister’s delegate, and will inform the conditions, if any, of the exemption that may be granted. This submission will assist in timely consideration of the matter, and will inform the conditions, if any, of the exemption that may be granted prior to commencement of activities. Upon receipt of a complete exemption application, a determination will normally be made within 14 days of arrival. Incomplete packages will be returned to the proponent for re-submission.

3. Improvements in scientific and biological information, including field assessments completed by qualified professionals, may lead to amendment(s) consistent with the *Government Actions Regulation* of moose UWR measures including:
 - a. the addition of new, or deletion of existing moose UWR polygon units,

- b. the adjustment of moose winter range unit boundaries, and
 - c. modification of a specific measure.
4. For cut blocks that fall under section 196 (1) of FRPA or S. 14(4) of FPPR (declared area), a meeting and or site visit should take place to discuss the overlap and develop suitable mitigation measures where practicable.
5. Within identified moose UWR polygons, harvest using silviculture systems, block configurations, patch sizing and patch distribution that will provide forage, visual screening, thermal and security cover, and snow interception while integrating timber and silvicultural management objectives.
6. Emphasis for thermal cover, snow interception and security cover management within UWR polygons is adjacent to forage areas such as willow and red-osier dogwood complexes. A forested buffer of 50 to 100 m wide is recommended, depending on topography. It is also recommended that forest types be retained adjacent to forage areas.
7. Moose forage production can be facilitated post timber harvest by promoting gap openings through reduced stocking standards, cluster planting, spacing and pruning at the silvicultural treatment unit level.
8. Moose winter range management plans should be prepared for winter ranges that are subject to forest development, where funding is available. These plans should include a monitoring component to ensure adaptive management can correct any errors, should they be found, in moose winter range placement or the management regime. The intent of moose winter range plans is to spatially identify areas where forage production and security cover are to be emphasized along with thermoregulation consideration during summer use. Limiting road development, the amount of active roads and access will also be components of moose winter range plans. Preparation of moose winter range plans is anticipated to be a partnership arrangement between forest licensee and the Ministry of Forests, Lands and Natural Resource Operations. Moose winter range plans will integrate into existing work such as the Skeena Islands Project.
9. Establish moose forage production guidelines within a moose winter range plan that are based on ecological parameters such as site series or plant communities. Depending on site classification the following are options for consideration: (1) maintain the native mixed deciduous-conifer stand profile; (2) reduce the density of conifer stocked; (3) concentrate varied spacing of conifers on higher dry ground; (4) allow willow and dogwood regeneration on lower wet ground; (5) thin dense alder stands to encourage willow and dogwood growth; (6) prune a percentage of old woody willows and dogwoods that are more than 3 meters tall to encourage new growth, giving preference to the use of manual treatments rather than herbicides for vegetation control; and, (7) where possible, use brushing treatments to enhance moose winter forage.

10. Moose winter range management plans should address both the risk of disturbance and methods for limiting access to moose winter ranges during their wintering period (November 1 to May 1).
11. An exemption from GWM 8 or 9 may be granted if the intent of road deactivation can be achieved through access restrictions. Access restrictions include attempt to prevent access by 4WD and off-road vehicles, and legislative authorities for vehicle closure.
12. A mainline, for purposes of this Order, includes main roads and major branch roads. It may be defined and/or described as a road that:
 - is the primary road in a valley-bottom or at the lowest-elevation practicable that provides access through order 4 and larger watersheds, or large landscapes where the terrain is rolling plateau and not defined valleys;
 - is defined and constructed (grade, alignment, width, surfacing and drainage) primarily for long-term efficient transportation of logs and equipment, not as a road intended for yarding, skidding, or loading of logs;
 - is used continuously or frequently throughout the full rotation of the forest (through time) and inactivity for primary forest operations is generally weeks or months, not years;
 - is subject to regular maintenance so that road deactivation is not required to protect and maintain the integrity of the road prism, drainage structures, and the adjacent ecological resources; and
 - may have extended periods (several years) of inactivity, planned for operational or wildlife conservation purposes, requiring temporary deactivation or access control.
13. Within a moose winter range, primary forest activities to focus within a short time frame, followed by a long phase of inactivity to reduce access related impacts to wintering moose.
14. Within the Skeena Islands Complex, co-locate moose thermal cover in areas that emphasize large conifer protection, rare plant communities and Wildlife Habitat Management Areas.
15. With respect to the transition strategy (GWM 7), it is the agreed upon intent with forest licensee to achieve a 30% or greater mature + old forest seral stage distribution for the Kitimat and Mid-Skeena moose winter range management units as soon as it is possible without impacting timber supply as per standard timber supply analysis.

Kalum LRMP direction for moose winter range also provides best management practice guidance as summarized below:

1.0 Within primary moose winter range:

- 1.1 The forest management focus of the slope adjacent to the floodplain is to provide for security cover.
- 1.2 Thermal cover retention on the adjacent forested slope will be managed for in the absence of large conifers on the floodplain. This management will generally occur within the immediate forested slope except where significant forage exists on such slopes.
- 1.3 Adjacent forested slopes within moose winter range will have a forage management emphasis when the site series (subhygric to hydric) that produce deciduous browse species (willow - *Salix spp.*, dogwood – *Cornus stolonifera*, cottonwood – *Populus trichocarpa*) become the predominant (>50%) site series from a stand level perspective (e.g. cutblock or overview mapping perspective at 1:20 000 scale).
- 1.4 Incorporate moose winter ranges in the design and application of forest connectivity.
- 1.5 Retain willow and dogwood browse, particularly along island and floodplain channels.
- 1.6 Prescribe forestry operations to address the risk of salmonberry (*Rubus spectabilis*) encroachment on site associations that could support red-osier dogwood or willow.
- 1.7 Retain security and thermal cover (i.e. conifers) in proximity to useable forage areas appropriate to the size of the habitat unit as defined in the moose winter range plan.
- 1.8 Retain a proportion of mature and old growth conifer stands with canopy structures which will trap snow, and provide bedding sites particularly adjacent to foraging areas identified in moose winter range plans.
- 1.9 Retain a percentage of large spruce trees within deciduous leading stands for thermal cover and bedding microsites.
- 1.10 In regenerating areas and plantations where security and thermal cover is lacking, identify conifer stands or large patches suitable for future cover and manage for cover attributes that mimic natural forests in terms of visual screening and large well formed branchy vets capable of snow interception and thermoregulation.

2.0 Within secondary moose winter range:

- 2.1 Encourage rotational forest stand development (i.e. harvest at early stand maturity) on sites conducive to both early seral forage and conifer production.
- 2.2 Promote the duration of early seral stage conditions on prime forage sites (subhygric to hydric) that produce deciduous browse species (willow, dogwood, cottonwood) where such sites predominate (>50%) from a stand level perspective (e.g. cutblock or overview mapping perspective at 1:20 000 scale). Stand spacing, pruning, reduced conifer stocking standards, and varied conifer spacing will assist in promoting the duration of early seral stage conditions.
- 2.3 Provide that adequate thermal cover and screening are available to a maximum range of 75 to 125 metres within and to prime forage areas (i.e. mature to old stands or large wildlife tree patches to be in the range of 150 to 250 metres apart).

- 2.4 Preference will be given to ground based vegetation management.
- 2.5 Maintain the natural deciduous/conifer mix of tree species and shrubs as expected for early seral conditions in prime forage potential sites.
- 2.6 Allow for natural establishment of willows along decommissioned road right-of-ways.

3.0 Within both primary and secondary moose winter range:

- 3.1 Limit road development and recreational use within moose winter ranges. Where road avoidance is not practicable, use measures to maintain security, such as maintaining dense coniferous visual screens, deactivating roads before November, building temporary roads or conducting road rehabilitation.
- 3.2 Where practicable, minimize moose disturbance in winter by using measures such as: geographically focusing roads and operations within a given winter range, restricted access and timing of activities.
- 3.3 Where practicable, retain, enhance or plant visual screens to obscure the winter ranges from high use transportation corridors.
- 3.4 Leave a proportion of large old growth trees for moose predator-response behaviour.

Appendix 2: Moose Habitat Attributes

Compiled by Len Vanderstar, R.P. Bio, R.P.F., Ecosystems, Skeena Region, MFLNRO, from surveys and published species accounts.

Life Requisite	Habitat Attribute and Description
Forage Habitat	<p>Structural Stage</p> <ul style="list-style-type: none"> • Early seral stages (3 and 4: herb-shrub and pole-sapling) usually provide ideal foraging conditions, supporting abundant deciduous browse year-round within secondary winter range. • Valley bottom fluvial complexes that define primary winter range are noted for providing abundant forage, by virtue of containing many pocketed or larger seasonally wet open areas, regardless of structural stage. • Aquatic habitats provide moose with aquatic forage during spring and summer. Buckbean (<i>Menyanthes trifoliata</i>), pondweed (<i>Potamogeton spp.</i>), and sedges are the predominant aquatic forage species. <p>Shrub Cover</p> <ul style="list-style-type: none"> • Shrub-dominated habitats that occupy 15 to 30% of a defined area (e.g. moose winter range) generally provide sufficient forage in both growing and winter seasons, provided that height requirements (below) are met. <p>Shrub Height</p> <ul style="list-style-type: none"> • 1 to 5 m for growing season (also assists in providing visual screening); >2.5 m for winter forage. <p>Shrub Species Composition</p> <ul style="list-style-type: none"> • Important woody browse includes willow, red-osier dogwood, high-bush cranberry, western red cedar and young subalpine fir; black twinberry, elderberry, mountain ash, aspen and cottonwood are also utilized depending on availability. <p>Aspect</p> <ul style="list-style-type: none"> • Site aspect is generally not important. However, south- and west-facing slopes have reduced snow depths and are first to be snow-free in spring. This provides moose access to shrub cover, early spring herbaceous emergents and green-up forage. <p>Landscape Position</p> <ul style="list-style-type: none"> • Valley bottom floodplains and other fertile drainages/areas have high forage productivity and diversity, particularly for early spring green-up forage.

Life Requisite	Habitat Attribute and Description
Thermal Cover	<p>Basal Area</p> <ul style="list-style-type: none"> 10% measured by pre-harvest mature & old forest cover. <p>Species Composition</p> <ul style="list-style-type: none"> Thermal cover species should be composed of large canopy, somewhat open grown conifer species, notably very mature and old-growth spruce and subalpine fir.
Snow Interception	<p>Canopy Cover</p> <ul style="list-style-type: none"> In areas of high snowfall, moose movement is facilitated by forests with crown closure of exceeding 50%, preferably >65% (Moose Wildlife Habitat Decision Aid, JEM-Vol. 11, No. 3). Snow interception cover is three dimensional and is optimized through both horizontal and vertical (canopy depth) structural development. <p>Area Coverage</p> <ul style="list-style-type: none"> Literature recommends more than 50% of winter range to have favourable snow interception canopy cover in high snow depth wetter biogeoclimatic zones.
Security Cover	<p>Visual Screening</p> <p>Stem density that obscures 90% of the moose at 60 m provides optimum visual screening. A measureable criteria would be when a 2 meter x 2 meter dark surface area has only 0.4 m² visible, keeping in mind broadleaf leafless winter conditions.</p> <ul style="list-style-type: none"> A diverse understory that obscures a moose at close range also provides effective security cover. Gullied terrain may offer security opportunities, and could be considered good security habitat. <p>Structural Stage</p> <ul style="list-style-type: none"> Suitable security cover could occur in structural stages 3, 4, 5, 6 and 7; however, the best security cover will likely occur in structural stages 3, 4 and 5 (5 being young forests).
Calving	<p>Landscape Position</p> <ul style="list-style-type: none"> Forested patches with good security cover, surrounded by extensive wetland complexes, forested peninsulas (water or wetland), and islands, are primary calving sites. <p>Adjacency</p> <ul style="list-style-type: none"> Isolation or seclusion of calving sites is critical.
Rutting Areas	<p>Landscape Position</p> <ul style="list-style-type: none"> Optimum rutting areas include subalpine meadow complexes, wetland complexes, extensive floodplains, early to mid-seral natural wildfire burned areas, and deciduous stands adjacent to high forage areas. <p>Adjacency</p> <ul style="list-style-type: none"> Isolation or seclusion of rutting areas ensures minimal disturbance to moose activity, and thus more successful mating behaviour.

