



ORDER – AMENDMENT TO UNGULATE WINTER RANGE U-2-005
Black-tailed Deer and Moose – Sea to Sky Forest District

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

1. The delegated decision maker, being satisfied that
 - i. the area contains habitat that is necessary to meet the winter habitat requirements for Black-tailed deer (*Odocoileus hemionus*) and Moose (*Alces americanus*); and
 - ii. the habitat requires special management that is not otherwise provided for under GAR or another enactment;

orders that

- a) this Order cancels and replaces:
 - i. the Order that became effective February 28, 2005 entitled “Order – Ungulate Winter Range #U-2-005”; and
 - ii. the Order that became effective on November 6, 2008 entitled “Order – Amendment to Ungulate Winter Range U-2-005”;
- b) pursuant to section 7(3) of the *Forest Planning and Practices Regulation* the person(s) required to prepare a forest stewardship plan is exempt 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* for the winter survival of ungulates in the Soo Timber Supply Area;
- c) the “retention” designation for Black-tailed deer unit G80-25-RE is canceled, and replaced with the amended “retention” unit G80-25-RE and amended “rotation” unit G80-25-RO as shown on the attached Schedule A map, and contained in the UWR spatial layer stored in the Geographic Warehouse (WHSE_WILDLIFE_MANAGEMENT.WCP_UNGULATE_WINTER_RANGE_POLY). The centre point of the line on the attached Schedule A map is what establishes the UWR boundary;
- d) the “retention” designation for Black-tailed deer units G98-34-RE and J18-87-RE is canceled, and replaced with a “rotation” designation as shown on the attached Schedule A map, and contained in the UWR spatial layer stored in the Geographic Warehouse (WHSE_WILDLIFE_MANAGEMENT.WCP_UNGULATE_WINTER_RANGE_POLY). The amended units are renamed G98-34-RO and J18-87-RO. The centre point of the line on the attached Schedule A map is what establishes the UWR boundary;
- e) the “rotation” designation for Black-tailed deer units J18-88-RO and J18-89-RO is cancelled, and replaced with a “retention” designation as shown on the attached Schedule A map, and contained in the UWR spatial layer stored in the Geographic Warehouse (WHSE_WILDLIFE_MANAGEMENT.WCP_UNGULATE_WINTER_RANGE_POLY). The amended units are renamed J18-88-RE and J18-89-RE. The centre point of the line on the attached Schedule A map is what establishes the UWR boundary;
- f) the area described as “J28-205-RE” and shown in the map set out in the attached Schedule A, and contained in the UWR spatial layer stored in the Geographic Warehouse (WHSE_WILDLIFE_MANAGEMENT.WCP_UNGULATE_WINTER_RANGE_POLY), is

established as Black-tailed deer unit J28-205-RE of U-2-005. The centre point of the line on the attached Schedule A is what establishes the UWR boundary;

- g) the areas described as “J27-46-RE (cancelled)”, “J27/28-47-RO (cancelled)”, “G88-90-RE (cancelled)”, “G75-9-RO (cancelled)” and shown in the map set out in the attached Schedule A, being entirely protected under the provincial *Park Act*, are deleted and no longer part of the Order for UWR U-2-005;
- h) the areas described as “G75-11-RO”, “J57-86-RE”, and “J26/27-201-RO” and shown in the map set out in the attached Schedule A, and contained in the UWR spatial layer stored in the Geographic Warehouse (WHSE_WILDLIFE_MANAGEMENT.WCP_UNGULATE_WINTER_RANGE_POLY), with portions being protected under the provincial *Park Act*, are amended;
- i) the areas described as “J37-64-RO”, “J58-58-RO”, and “J58-59A-RO” and shown in the map set out in the attached Schedule A, and contained in the UWR spatial layer stored in the Geographic Warehouse (WHSE_WILDLIFE_MANAGEMENT.WCP_UNGULATE_WINTER_RANGE_POLY) with portions being in private land, are amended;
- j) the Black-tailed deer unit J47-80-RE amended by the Order for UWR U-2-005 established November 6, 2008 and shown in the map set out in the attached Schedule A, and contained in the UWR spatial layer stored in the Geographic Warehouse (WHSE_WILDLIFE_MANAGEMENT.WCP_UNGULATE_WINTER_RANGE_POLY) remains unchanged and in effect;
- k) the remaining Black-tailed deer and Moose units originally established by the Order for UWR U-2-005 on February 28, 2005 and shown in the map set out in the attached Schedule A map, and contained in the UWR spatial layer stored in the Geographic Warehouse (WHSE_WILDLIFE_MANAGEMENT.WCP_UNGULATE_WINTER_RANGE_POLY) remain unchanged and in effect ;
- l) if there is a discrepancy between the areas shown in the map set out in the attached Schedule A map and the UWR spatial layer stored in the Geographic Warehouse (WHSE_WILDLIFE_MANAGEMENT.WCP_UNGULATE_WINTER_RANGE_POLY), the areas as detailed in the UWR spatial layer will take precedent.

2. The delegated decision maker, being satisfied that

- i. the general wildlife measures (GWMs) described below are necessary to protect and conserve the winter habitat of Black-tailed deer and Moose; 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 U-2-005;

Schedule 1:

Definitions:

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 under it, unless context indicates otherwise.

Deer Winter Range – Retention means forested habitat, usually stands of mature or old-growth conifers, which provide deer with resources critical to survival during severe winters.

Deer Winter Range – Rotation means habitats in various stages of succession that provide deer winter habitat for survival and are usually located between retention winter range habitats when the distance between retention winter ranges is >4km; or in areas where there is a lower snow pack and known deer winter use.

Director means the Director of Resource Management, South Coast Region, Ministry of Forests, Lands and Natural Resource Operations (FLNR).

Functional Winter Range means a narrow range of habitats that sustain deer over winter periods of extended stressful conditions. Functional winter range is important and is required during periods where snow can persist occasionally over extended periods of time.

Incursion means new timber harvesting or road construction that is located within a UWR boundary where no harvesting or road construction is otherwise permitted to occur.

Moose Core Winter Range means forested habitat, usually stands of mature or old-growth conifers, having very high winter forage values and/or good snow interception properties and are close to good moose forage values.

Moose Winter Range Forage Management Zone means habitat that is outside the Moose Core Winter Range that is managed for the production of winter moose forage.

Productive forest area means forest included as either contributing, partial contributing or non-contributing as per timber supply review planning.

Traditional and cultural activities are as defined in the *Free Use Permit Regulation of the Forest Act*.

General Wildlife Measures:

Deer Winter Range – Retention units (DWRRE):

1. No timber harvesting, including salvage, and road construction are permitted. Exemptions would only normally be considered for the purposes of enhancing quality of the DWRRE; or for roads where there is no other practicable option.
2. GWM 1 does not apply if:
 - a. it is necessary to create guyline tiebacks for timber harvesting outside of a DWRRE boundary;
 - b. trees felled in accordance with GWM 2 (a) are retained onsite to function as coarse woody debris, unless the felled tree:
 - i. lies outside the DWRRE boundary; or

- ii. poses a forest health risk;
- c. cutting of trees is for the purpose of traditional and cultural activities, as authorized under a Free Use Permit issued under the *Forest Act*; or
- d. road maintenance activities, or road deactivation, or brushing and clearing activities occur on existing roads.

Deer Winter Range – Rotation units (DWRRO):

- 3. Maintain a minimum of 20% of the total DWRRO area in each unit as *functional winter range* at any one time. The functional winter range component must be spatially arranged to provide optimum ready access to forage and shelter for deer; and must be spatially identified prior to commencing harvesting.
- 4. Up to 20% of the total DWRRO area in each unit can be harvested every 20 years without restrictions as long as GWM 3 has been met.
- 5. The requirements of GWM 4 may be exceeded if Silviculture treatments, and timber harvesting including intermediate commercial thinning, are undertaken in the same DWRRO unit to enhance, create or expedite the production of functional winter range.

Moose Core Winter Range (MCWR):

- 6. Timber harvesting, including salvage, and road construction are not permitted. Exemptions would normally be considered for the purposes of enhancing the quality of the MCWR; or for roads where there is no other practicable option.
- 7. GWGWM 6 does not apply if:
 - a. it is necessary to create guyline tiebacks for timber harvesting outside of a MCWR boundary;
 - b. trees felled in accordance with GWM 7 (a) are retained onsite to function as coarse woody debris, unless the felled tree:
 - i. lies outside the MCWR boundary; or
 - ii. poses a forest health risk;
 - c. cutting of trees is for the purpose of traditional and cultural activities, as authorized under a Free Use Permit issued under the *Forest Act*; or
 - d. road maintenance activities, or road deactivation, or brushing and clearing activities occur on existing roads.

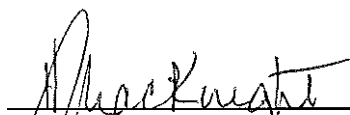
Moose Winter Range Forage Management Zone (MWRFMZ):

- 8. Timber harvesting, reforestation and stand tending (silviculture) operations in MWRFMZ are permitted if they will not cause a material adverse impact on the production of moose winter forage.

9. Timber harvesting will result in cut blocks where areas of forage production are ≤ 200 meters from a group of retained trees, an area of wildlife tree retention, or the cut block boundary.
10. Wildlife tree retention areas, or other groups of retained trees (up to 0.2 ha), planned within an area of timber harvesting, will be designed to provide patches of snow interception and security cover.

Incursions:

11. Where primary forest activities are planned immediately adjacent to any DWRRE or MCWR unit in U-2-005 with >30 ha productive forest area, GWMs #1 or #6 respectively do not apply to the area of an incursion along the UWR unit boundary if:
 - a. the incursion is required to provide for a logical harvesting boundary or a logical road or trail location that utilizes a physical feature or administrative boundary; and
 - b. the area of the incursion, or multiple incursions cumulatively, do not exceed:
 - i. 1 ha of productive forest area in UWR units with >30 ha and ≤ 50 ha productive forest area; or
 - ii. 2 ha of productive forest area in UWR units with >50 ha to ≤ 100 ha productive forest area; or
 - iii. 3 ha or 1% of productive forest area, whichever is greater, in UWR units with >100 ha productive forest area;
 - c. the incursion exceeds 0.5 ha, and the area of the incursion is replaced with an equivalent or greater area of equal or better habitat contiguous to the UWR unit such that there is no net loss; and the incursion does not affect the intent or integrity of the UWR unit; and
 - d. boundaries of the incursion and any replacement habitat are provided to the Director (via ESRI shape files) prior to the commencement of primary forest activities associated with the incursion.



Heather MacKnight
Regional Executive Director, South Coast Region
Ministry of Forests, Lands and Natural Resource Operations

October 31, 2014.

Date Signed

Appendix 1:

The following information is provided by FLNR and Ministry of Environment (MoE) as background information and support to the Order amending UWR U-2-005. This appendix is not part of the Order.

1. **Activities to which the Order does not apply:** Section 2(2) of the *Government Actions Regulation* states

An Order under any of sections 5 to 15 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 *Act*, and

(d) areas referred to in section 110 of the *Forest Planning and Practices Regulation*.

2. Authority to consider an exemption from these GWMs is provided in Section 92(1) of the *Forest Planning and Practices Regulation* and section 79(1) of the *Woodlot License Planning and Practices Regulation*. An exemption may be provided if the Minister's delegate is satisfied that the intent of the GWM 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 Director of Resource Management, South Coast Region with a rationale describing the nature of the problem and options to integrate winter range conservation with proposed forest and/or range practices. 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 calendar days of arrival at the FLNR regional office. Incomplete packages will be returned to the proponent for re-submission. A template for exemption requests is available at: <http://www.env.gov.bc.ca/wld/frpa/index.html>

3. In the Soo Timber Supply Area two subspecies of Black-tailed deer occur. Coastal areas are occupied by Columbian Black-tailed deer (*Odocoileus hemionus columbianus*) while more interior habitats are occupied by Rocky Mountain mule deer (*O. h. hemionus*). The GWMs do not distinguish between the two subspecies.
4. Moose winter range is differentiated from deer winter range on the Schedule A map by colour. Labels for deer winter range "retention" and "moose core winter range" include a descriptor shown as "RE" (e.g. J28-49-RE). Labels for deer "rotation" and "moose winter range forage management zone" include a descriptor shown as "RO" (e.g. J28-53-RO).

5. Any maps produced by *Forest Act* agreement holders to spatially identify at least 20% functional winter range in DWRRO, or any mapping undertaken in support of timber harvesting in MWRFMZ, are to be kept on file and made available to a government official upon request. It is recommended that qualified professionals be engaged to help spatially define the functional winter range in DWRRO, or assist with planning in MWRFMZ.
6. Specific to GWM 4 in Deer Rotation Winter Range, where up to 20% of the total rotation polygon may be harvested every 20 years, the intent is to include any forest in the rotation winter range category that is <20 years old at the time of the assessment. The “up to 20% every 20 years” is not measured or tied to the Order date (i.e. every 20 years is not measured from 2005 to 2024, then 2025 to 2044). As an example, if a licensee in the year 2012 is considering a new cut block in a 100 ha rotation deer winter range and there is a 20 ha - 18 year old cut block already existing, then the 18 year old block is included as part of the 20%, and in this example no further regular harvesting would be allowed until the existing block was at least 20 years old. In the same example, if the 18 year old block was only 10 ha, then a further 10 ha could be harvested in 2012.
7. Guidance specific to GWM 3, 4, 5, 8, 9 and 10 is provided in Appendix 2.
8. The intent of GWM 11 is to facilitate pre-authorized boundary exemptions for those UWR retention or core units with >30 ha productive forest area provided that FLNR is notified prior to the incursion taking place.

Examples of incursions include a cut-block, road, trail or landing that overlaps an UWR boundary and: a) that the intent of the UWR boundary was to follow a creek/road and in some areas the boundary extends slightly beyond the creek/road due to a GIS mapping error and creates the overlap; or b) unintentional overlap occurs with an engineered primary forest activity that becomes evident when comparing map scales (e.g. 1:20000 vs 1:5000); or c) *Forest Act* agreement holders can demonstrate that the block, road, trail or landing are located in a logical location and the incursion does not exceed the amount allowed.

In almost all instances the amount of incursion is anticipated to affect a small area. No replacement area is required when the discrepancy is: a) caused by GIS boundary mapping error since the intent of the winter range has not been altered; or b) the cumulative overlap is <0.5 ha. In other situations, the intended result is that where a boundary amendment is suggested by a *Forest Act* agreement holder and when the reduction is measurable (≥ 0.5 and ≤ 3 ha or <1% measured cumulatively in any UWR unit), it will result in no net loss to the winter range. Delineation of equal or better UWR habitat, in quantity and quality, will be required. A biological assessment to replace habitat should be conducted by a qualified professional with appropriate training and experience for the work being completed. If replacement habitat is required and equal or better habitat is not available contiguous to the UWR unit in question, the incursion cannot proceed under this GWM. Boundary amendments meeting the conditions identified in GWM 11 will be periodically reviewed by FLNR and MoE and the UWR boundary officially amended under the *Government Actions Regulation*. In any instances where the conditions in GWM 11 cannot be met, proposed primary forest activities will require an exemption as outlined under section 2 in this Appendix.

UWR retention or core units with <30 ha productive forest area are excluded from GWM 11 because of potential adverse impacts to the small amount of existing snow interception cover from an incursion. An exemption request for any of these small UWR units should be submitted to the Director of Resource Management as outlined under section 2 in this Appendix. Proponents are responsible for determining the amount of productive forest area (i.e. area of contributing, partial-contributing, or non-contributing forest as per the timber supply review) within all UWR units to determine which category they fit into in the GWM.

In addition to reporting incursions to the Director prior to commencement of activities as per GWM 11(d), it is the proponent's responsibility to keep accurate records of each occurrence. Records must also be made available to a government official upon request.

9. These GWMs do not apply to persons who must comply with the *Worker's Compensation Act* and the regulations under that *Act* (e.g. danger tree felling). Consistent with section 2(3) of the *Forest Planning and Practices Regulation*, exemptions from these GWMs are not required to meet safety requirements. Where safety considerations prevent following the GWMs, professionals should consider writing a rationale to explain the safety issue; and it should be kept on file.

Appendix 2.

The following information is provided by FLNR and Ministry of Environment (MoE) as background information and support to the Order amending UWR U-2-005. This appendix is not part of the Order.

A. Deer Winter Range:

1. In meeting the requirement for GWM 3, the critical features of functional winter range that will help to sustain deer during winter periods are:

- well-developed tree crowns that intercept snow (allowing foraging and movement);
- warm aspects (SE, S, SW, W);
- moderate to steep slopes (40-100%);
- elevations below 1500m (in interior ecosystems on shallow snow pack zones, and 1000m in coastal ecosystems and the moderate to deep snow pack zones);
- small openings (<0.5 ha) in a variable canopy permitting growth of key forage species;
- multiple canopy layers with an understory of Douglas-fir or cedar-hemlock thickets providing additional thermal cover, security cover and forage;
- small rock outcrops that provide intense solar radiation and foraging areas and thermal sites;
- minimal shading from adjacent hillsides;
- older forests (>100 years) with arboreal lichen (*Alectoria*, *Bryoria* and *Usnea spp.*) which are key winter food sources, especially when snow depths restrict access to the availability of other rooted forage species;
- proportions of crown closure habitat within functional deer winter range (Figure 1) within the Moderate Snowpack Zone:

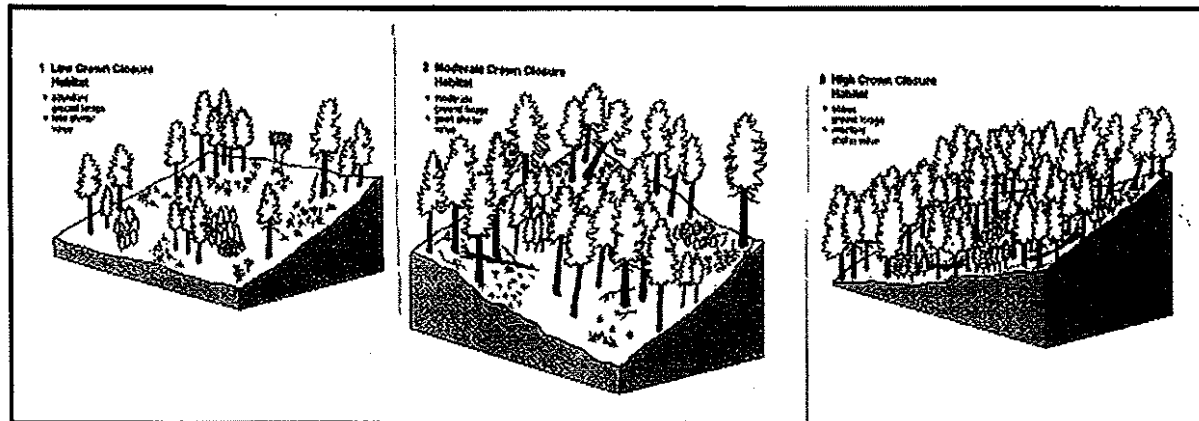
Crown closure habitat types within functional deer winter range in low, moderate, and deep snowpack zones¹:

| <i>Crown Closure Habitat</i> | <i>Crown Closure Percentage</i> | <i>Crown Closure Class Code</i> | <i>Recommended proportion (%) of Crown Closures within the <u>Shallow</u> Snowpack Zone* (100 cm mean annual snowfall)</i> | <i>Recommended proportion (%) of Crown Closures within the <u>Moderate</u> Snowpack Zone* (100-150 cm mean annual snowfall)</i> | <i>Recommended proportion (%) of Crown Closures within the <u>Deep</u> Snowpack Zone* (150-200 cm mean annual snowfall)</i> |
|----------------------------------|-------------------------------------|-------------------------------------|--|---|---|
| Low | 16-35% | 2, 3 | ~40 | ~33 | ~33 |
| Moderate | 36-65% | 4, 5, 6 | ~40 | ~33 | 0 |
| High | >65% | >6 | ~20 | ~33 | ~66 |

*This Order does not define elevations for snow zones, however: Shallow Snowpack Zone is generally defined as <400 m elevation. Moderate Snowpack Zone is generally defined as 400-800 m elevation. Deep Snowpack Zone is generally defined as >800 m elevation.

¹ See Armleder, H.M., M.J. Waterhouse, R.J. Dawson and K.E. Iverson. 1998. Mule Deer Response to Low-volume Partial Cutting on Winter Ranges in Central Interior British Columbia. Ministry of Forests, Research Program. B.C.

Figure 1: Proportions of crown closure habitat within functional deer winter range



2. In meeting the requirement for GWMs 4 and 5, the following is suggested operational guidelines for planning harvesting, planting, stand tending and road building within a Rotation Winter Range:

The following guidelines have been divided into recommendations when harvesting: 1) an area within a rotation winter range that meets GWM 4; and 2) a portion of the winter range for the purpose of creating, expediting or enhancing part of the winter range as per GWM 5.

| <i>Harvesting</i> | |
|---|---|
| <i>Guidelines to consider when harvesting the unrestricted 20% of the rotation winter range as to GWM 4.</i> | <i>Guidelines to apply when creating winter range attributes in rotation winter range through mitigation or enhancement as per GWM 5.</i> |
| <ul style="list-style-type: none"> • Consider small openings as opposed to one large one | <ul style="list-style-type: none"> • Maintain the crown closure proportions recommended for the specific snowpack zone |
| <ul style="list-style-type: none"> • Consider lower volume selective harvesting | <ul style="list-style-type: none"> • Openings should be 0.5 to 1.0 tree heights wide (Nyberg and Janz 1990). |
| <ul style="list-style-type: none"> • Maintain micro-habitats important to deer (ridges, rock outcrops and knolls with conifer cover, topographic breaks or edges that show travel use by deer, dense thickets that provide security and thermal cover) | <ul style="list-style-type: none"> • Maintain a significant component of old-growth trees; cover must be at least 100m wide to be effective at providing cover and gain thermal shelter |
| | <ul style="list-style-type: none"> • Maintain micro-habitats important to deer (ridges, rock outcrops and knolls with conifer cover, topographic breaks or edges that show travel use by deer, dense thickets that provide security and thermal cover) |
| | <ul style="list-style-type: none"> • Control debris (slash) depths to maintain movement opportunities for deer |
| | <ul style="list-style-type: none"> • Minimize damage to residual trees and regeneration |

3. Other considerations:

- If **road building** must occur in or adjacent to a winter range, harassment or disturbance pressures on deer can be reduced by:
 - Designing road layout to minimize the amount of road required;
 - Avoiding road routes through the winter range or along an edge; and
 - Maintaining, where possible, cover (screening) along the road edge.
- **Reforestation (tree species selection) and stand density management** that produce an optimum mix of: 1) large crowns for cover; and 2) thermal shelter, should be considered when preparing a site plan or enhancement plan in a rotation winter range.
- Consulting a qualified professional in wildlife/forest management is recommended when preparing site plans or enhancement plans for a rotation winter range.

B. Moose Winter Range:

1. In meeting the requirements of GWM 8, 9 and 10, the following is offered as guidance for operating in Moose Winter Range Forage Management Zone:

Harvesting Operating Guidelines²:

- Harvesting may utilize a suite of harvesting/silviculture systems including clear cutting, variable retention, selective logging, and commercial thinning.
- Special attention is to be paid to including the retention of larger limbed tree species (specific to individual ecosystems) that provide better snow interception than other species.
- Early harvesting (i.e. before culmination age is achieved) is permitted as a technique to put a closed canopy stand back into the high forage value status associated with a recently logged (i.e. early seral) vegetative community.
- Commercial thinning can be used to reduce crown closure and stimulate the production of herbaceous forage species. Commercial thinning may be done uniformly across a stand or involve removal of small groups to target a mosaic of mature trees and forage areas on the floodplain in the future.
- Commercial thinning in combination with delayed or extended rotation final harvest may also be considered. Multiple entry commercial thinning may be considered as a part of this strategy.

Reforestation Operating Guidelines:

- Generally, reforestation strategies which optimize timber production and forage production are to be used within the THLB portion of the MWRFMZ.
- Reforestation prescriptions should include options such as cluster planting or lower density stocking so that crown closure is delayed and forage production is maintained further into the rotation.

² See International Forest Products Ltd (Interfor) 2002. TFL 38 Moose Winter Range Management Strategy. June 2002. Squamish, B.C.

- Tree species that provide for better snow interception characteristics should be considered for reforestation.
- Brush control prescriptions should focus only on control of brush that is directly competing with crop trees and should specifically avoid incidental or broadcast brushing of high value forage species such as red-osier dogwood, black cottonwood and willow.

Stand Tending Operating Guidelines:

- Juvenile spacing may be used to reduce crop tree density and thereby increase light to the forest floor and stimulate rooted forage production.
- Pruning prior to crown closure may be used to increase light penetration and maintain forage production longer into the rotation.
- In stands where stand establishment has been achieved, consider manual brushing to promote sprouting to increase the forage supply.

C. References:

Armleder, H.M., M.J. Waterhouse, R.J. Dawson, and K.E. Iverson. 1998. Mule Deer Response to Low-volume Partial Cutting on Winter Ranges in Central Interior British Columbia. Ministry of Forests, Research Program, BC.

Green, R.N. and K. Klinka. 1994. A Field Guide to Site Identification and Interpretation for the Vancouver Forest Region. Ministry of Forests, Research Branch, BC.

International Forest Products Ltd (Interfor). 2002. TFL 38 Moose Winter Range Management Strategy. Squamish, BC.

Nyberg, J.B. and D.W. Janz, technical eds. 1990. Deer and Elk Habitats in Coastal Forests of Southern British Columbia. Ministry of Forests, Special Report Series 5, Research Branch, Victoria, BC.

Resources Inventory Committee. 1997. Standardized inventory methodologies for components of British Columbia's biodiversity: Ground based census techniques for selected cervids – Moose, Elk, Mule/Black-tailed Deer, White-tailed Deer and Fallow Deer. Ministry of Environment, Lands and Parks, Wildlife Branch, Victoria, BC.

St-Louis, A., J.P. Ouellet, M. Crête, J. Maltais, and J. Huot. 2000. Effects of partial cutting in winter on white-tailed deer. *Can J. For. Res.* 30: 655-661 (2000). © 2000 NRC Canada.