



ORDER – UNGULATE WINTER RANGE #U2-005

The following order applies to the area identified within the attached Schedule A and takes effect on the 28 day of February, 2005.

This order is given under the authority of sections 9(2) and 12(1) of the *Government Actions Regulation* (B.C. Reg. 582/2004) and section 7(3) of the *Forest Planning and Practices Regulation* (B.C. Reg. 14/04).

The Deputy Minister of Water, Land and Air Protection orders that:

1. the ungulate winter range shown in the map set out in the attached Schedule A (#U2-005) is established;
2. the ungulate winter range in the attached Schedule A is established for black-tailed deer (*Odocoileus hemionus*) and moose (*Alces alces*);
3. the general wildlife measures outlined in Schedule 1 and 2 are established for the ungulate winter ranges in the attached Schedule A; and
4. pursuant to section 7(3) of the *Forest Planning and Practices Regulation* 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* for the winter survival of ungulates in the Soo Timber Supply Area.

Schedule 1 – General Wildlife Measures for Black-tailed deer

A. Retention Winter Range (DWORE)

1. Road construction is not to occur within the designated ungulate winter ranges unless there is no other practicable option and an exemption is approved by the MWLAP designated authority.
2. An exemption is not required for road maintenance, road deactivation, felling of danger trees or brushing and clearing on existing roads within the UWR. These activities will be conducted in a manner that does not result in a material adverse impact on the ungulate winter range habitat within the designated ungulate winter range.
3. Harvesting is not to occur within the designated ungulate winter ranges unless an exemption is approved by the MWLAP designated authority. An exemption would be considered for the purposes of enhancing the quality of the winter range.
4. An exemption is not required for harvesting within the designated ungulate winter ranges when it is required to address worker safety: felling of danger trees, felling for guy line

anchors, felling of tail hold anchor trees within an UWR along adjacent cutblock boundaries. Harvesting will be conducted in a manner that does not result in a material adverse impact on the ungulate winter range habitat within the designated ungulate winter ranges.

5. Trees that must be felled within an UWR will be left onsite to provide coarse woody debris, unless the felled tree lies outside the UWR.
6. Salvage harvesting is not to occur within the designated ungulate winter ranges unless an exemption is approved by the MWLAP designated authority.

B. Rotation Winter Range (DWR)

1. Maintain a minimum of 20% of the total rotation polygon area as *functional winter range* at any one time. The functional winter range (minimum 20%) must be spatially arranged to provide optimum ready access to food and shelter and must be spatially identified prior to commencing harvesting.
2. Up to 20% of the total polygon area can be harvested every 20 years **without restrictions** as long as general wildlife measure 1 has been met. Any harvesting that could occur over the 20% every 20 years should be for mitigating or enhancing the remaining winter habitat within the rotation winter range polygon.
3. Harvesting, Intermediate commercial thinning, and silviculture treatments (in addition to the 20% harvest) that enhance, create or expedite the production of functional winter range are permitted and encouraged (see operational guidelines).

Schedule 2 – General Wildlife Measures for Moose

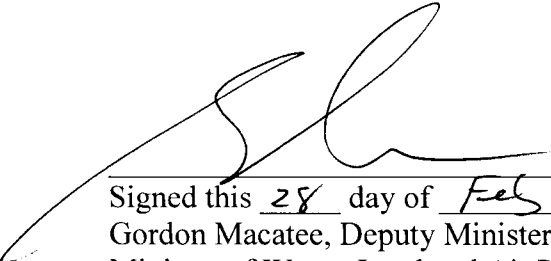
A. Core Winter Range (CMWR)

1. Road construction is not to occur within the designated ungulate winter ranges unless there is no other practicable option and an exemption is approved by the MWLAP designated authority.
2. An exemption is not required for road maintenance, road deactivation, felling of danger trees or brushing and clearing on existing roads within the CMWR. These activities will be conducted in a manner that does not result in a material adverse impact on the ungulate winter range habitat within the designated ungulate winter range.
3. Harvesting is not to occur within the designated ungulate winter ranges unless an exemption is approved by the MWLAP designated authority. An exemption would be considered for the purposes of enhancing the quality of the winter range.

4. An exemption is not required for harvesting within the designated ungulate winter ranges when it is required to address worker safety: felling of danger trees, felling for guy line anchors, felling of tail hold anchor trees within a CMWR along adjacent cutblock boundaries. Harvesting will be conducted in a manner that does not result in a material adverse impact on the ungulate winter range habitat within the designated ungulate winter ranges.
5. Trees that must be felled within a CMWR will be left onsite to provide coarse woody debris, unless the felled tree lies outside the CMWR.
6. Salvage harvesting is not to occur within the designated ungulate winter ranges unless an exemption is approved by the MWLAP designated authority.

B. Forage Management Zone (MWR FMZ)

1. Timber harvesting, reforestation and stand tending operations in Moose Winter Forage Management Zone will not cause a material, adverse impact on the production of moose winter forage.
2. Any wildlife tree retention, or retention of trees for other purposes, that is planned for an area of timber harvesting in the Moose Winter Forage Management Zone, will be designed to provide patches of snow interception and security cover in tree groups or patches up to 0.2 hectares.
3. Road construction is permitted in the portion of the Moose Winter Forage Management Zone that is in the Timber Harvesting Land Base.
4. ~~Cut block size and adjacency is not limited in the Moose Winter Forage Management Zone.~~ Timber harvesting will result in cut blocks where areas of forage production are not more than 200 meters from a group of retained trees, an area of wildlife tree retention, or the cut block boundary.



Signed this 28 day of Feb, 2005
Gordon Macatee, Deputy Minister
Ministry of Water, Land and Air Protection

APPENDIX 1

1. Deer winter range

A. Definitions:

- 1) Retention Winter Range: forested habitat, usually stands of mature or old-growth conifers, which provide deer with resources critical to survival during severe winters (Nyberg and Janz 1990).
- 2) Rotation Winter Range: Habitats in various stages of succession placed on the landscape to provide winter habitat attributes when the distance between retention winter ranges is usually > 4km or in areas where there is a lower snow pack and known deer winter use.

B. Functional Winter Range

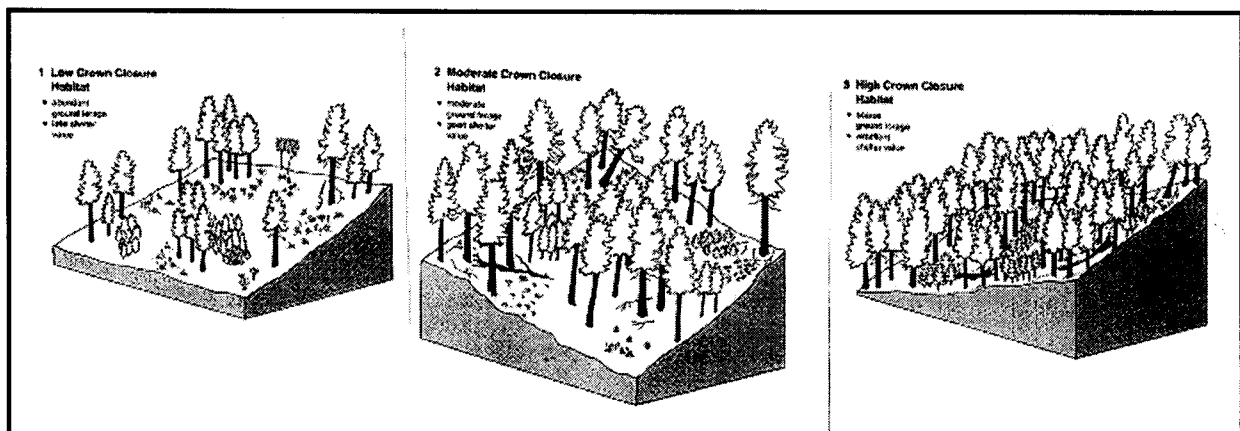
During periods where snow can persist occasionally over extended periods of time, retention of critical deer winter range habitat features is more important. A narrow range of habitats sustain deer over these extended periods of stressful conditions. The critical features of *functional winter range* that will help to sustain deer during these periods are (Bunnell 1990; Nyberg and Janz, 1990; Armleder et al 1986):

- Well-developed crowns that intercept snow (allowing foraging and movement),
- Warm aspects (SE, S, SW, or W),
- Moderate to steep slopes (40-100%),
- Elevations below 1500m (in the interior ecosystems on the shallow snowpack zones and 1000m on the coastal ecosystems and the moderate to deep snowpack zones),
- Small openings (< .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 food,
- The intense solar radiation provided by small rock outcrops provides foraging areas and thermal sites,

- Minimal shading from adjacent hillsides,
- Older forests (>100 years) with arboreal lichen (*Alectoria*, *Bryoria* and *Usnea spp.*) which is a key winter food source (Stevenson, 1985), especially when snow depths restrict the availability of other 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 Zones (Armleder 1986)					
Crown Closure Habitat	Crown Closure Percentage	Crown Closure Class Code	Recommended Proportion (%) of Crown Closures within the <u>Shallow Snowpack Zone</u> (100 cm mean annual snowfall)	Recommended Proportion (%) of Crown Closures within the <u>Moderate Snowpack Zone</u> (100–150 cm mean annual snowfall)	Recommended Proportion (%) of Crown Closures within the <u>Deep Snowpack Zone</u> (150-200 cm mean annual snowfall)
Low	16-35%	2,3	~40	~33	~33
Moderate	36-65%	4,5,6	~40	~33	0
High	>65%	>6	~20	~33	~66

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



C. Suggested operational guidelines for planning harvesting, planting, stand tending and road building within a Rotation Winter Range

- The following guidelines have been divided into two; recommendations when harvesting an area within a rotation winter range that meets Objective 2 and when

harvesting a portion of the winter range for the purpose of mitigating or enhancing a portion of the winter range.

Harvesting	
<i>Guidelines to consider when harvesting the unrestricted 20% of the winter range as to Objective 2</i>	<i>Guidelines to apply when creating winter range attributes through mitigation or enhancement</i>
<ul style="list-style-type: none"> • Consider smaller 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 height 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 100m wide to provide 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 depths
	<ul style="list-style-type: none"> • Minimize damage to residuals and regeneration

- If **road building** must occur in or adjacent to a winter range, road layout should be designed to minimize the amount of road required. By reducing the amount of road, avoiding routes through the winter range or along an edge, and by maintaining, where possible a cover buffer along the road edge, harassment pressures to the deer can be reduced.
- **Reforestation (tree species selection) and stand density management** that produce an optimum mix of large crowns for cover and thermal shelter should be considered when preparing a site plan or enhancement plan in a rotation winter range.
- Consulting a professional in wildlife/forest management is recommended when preparing site plan or enhancement plan for a rotation winter range.

2. Moose winter range

A. Definitions

- 1) Core Moose Winter Range (CMWR): 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 forage values.
- 2) Moose Winter Range Forage Management Zone (MWRFMZ): Management of the Timber Harvesting Landbase (THLB) outside the Core Moose Winter Range for the production of winter moose forage.

B. Guidance for operating in Moose Winter Range Forage Management Zone

1: Harvesting Operating Guidelines (Interfor 2002)

- ◇ 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 [ie. 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 [ie. 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 apart of this strategy.

2: Reforestation Operating Guidelines

- ◇ Generally, reforestation strategies, which optimize timber production and forage production are to be used within the THLB portion of the MWRMZ.
- ◇ 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.
- ◇ 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.

3: Stand Tending Operating Guidelines

- ◇ Juvenile spacing may be used to reduce crop tree density and thereby increase light to the forest floor and stimulate 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.

3. 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. B.C.
- 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*. June 2002. Squamish, B.C.

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, British Columbia.

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*. Wildlife Branch, Ministry of Environment, Lands and Parks, Victoria, B.C.

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

