BRITISH COLUMBIA

ORDER – UNGULATE WINTER RANGE #U-8-008

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

The Deputy Minister of Environment orders that:

1. the ungulate winter range shown in the map set out in the attached Schedule A (#U-8-008) is established;
2. the ungulate winter range shown in the map set out in the attached Schedule A (U-8-008, Boundary Timber Supply Area and Tree Farm Licence 8) is established for mule deer (*Odocoileus hemionus*);
3. the general wildlife measures outlined in Schedule 1 are established for the ungulate winter range and planning cells as shown on the attached Schedule A;
4. for the purposes of section 2(3)(a) of the *Government Actions Regulation*, the general wildlife measures outlined in Schedule 1 apply to minor tenures;
5. where there is any discrepancy between the ungulate winter range boundaries as shown in the attached Schedules A and the GIS file *tuwra_bc*, the boundaries as detailed in the GIS file will take precedent. The centre point of the line on the map denoting the ungulate winter range is what establishes the boundary;
6. 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 Boundary Timber Supply Area and Tree Farm Licence 8;
7. this notice is not applicable to woodlots in the Boundary Timber Supply Area;
8. the following General Wildlife Measures do not apply for the purposes of timber salvage to address wildfire or serious forest health issues;
9. the following General Wildlife Measures do not apply for the purposes of exploration, development and production activities when these activities have been authorized for purposes of subsurface resource exploration, development or production by the *Mineral Tenure Act,* the *Petroleum and Natural Gas Act*, the *Pipeline Act* or the *Geothermal Resources Act*;
10. Where U-8-008 overlaps with U-8-010 (Bighorn Sheep) and/or U-8-009 (Mountain Goat), the General Wildlife Measure for Access for all species must be met, and the General Wildlife Measures for U-8-008 for Harvesting and Silviculture take precedence; and
11. Where U-8-008 overlaps with U-8-007, only the General Wildlife Measures for U-8-008 apply.

Schedule1 – General Wildlife Measures

Access:

1. Do not develop roads or trails in areas required for snow interception cover (SIC). This does not apply where trails will be used for uneven-aged silviculture systems in the SIC provided General Wildlife Measures 5 and 6 are met.

2. Open road densities (accessible to 4 wheel drive cars/trucks) within each planning cell are not to exceed 3 km per km^2.

Harvesting and silviculture:

3. Forest practices must not result in the removal of SIC below those amounts specified in Table 1 for each planning cell. The SIC requirements are to be applied within the net forested area, which excluded open forest and open range, as per the Fire Maintained Ecosystem Restoration map available on the following ftp site: ftp://ribftp.env.gov.bc.ca/pub/outgoing/cdc_data/uwr/r8/.

4. SIC requirements identified in GWM 2 must be applied as per the snowpack zone specific snow interception cover attributes defined in Table 2. Snowpack zones are defined as per Table 3.

5. In the Moderate and Deep Snowpack Zones, the oldest aged Douglas-fir stands with high canopy closure are not to be subjected to timber harvest if such practices would compromise SIC attributes defined in Table 3.

6. The use of uneven-aged silviculture systems in SIC areas, must not reduce the pre-harvest canopy closure below that specified in Table 3, and retain dominant and co-dominant Douglas-fir stems as the first priority.

7. SIC areas are not permanent set asides, and may be harvested when replacement stands having acceptable attributes are available (i.e. Douglas-fir dominated stands with Snowpack Zone specific age and canopy closure from Table 3).

8. In planning cells where SIC attributes are currently not present, forest practices must retain those stems and/or stands that have the potential for meeting the desired SIC attributes in the shortest period of time.

9. Forest practices are to result in a SIC distribution that minimizes the distance between SIC and other habitat types such as early seral foraging sites.

10. In the Moderate Snowpack Zone, forest practices will result in a minimum of 67% of the net area of each planning cell being more than 20 years of age. This

general wildlife measure can be attained over a maximum of three adjacent planning cells.

Table 1: Boundary Mule Deer Winter Range Planning Cell Snow Interception Cover (SIC) Retention

Planning Cell	Gross Area (ha)	Open Forest (ha)	Open Range (ha)	Net Area (ha)	SIC Retention	SIC Retention (ha)
1	168	43	14	112	20.0%	22
2	1,918	536	405	976	18.7%	182
3	1,673	230	255	1,188	15.1%	179
4	1,115	202	233	681	19.5%	133
5	2,404	747	256	1,401	20.0%	280
6	1,041	270	355	416	15.7%	65
7	1,267	411	149	707	19.5%	138
8	1,995	586	93	1,315	16.8%	221
9	1,860	341	377	1,142	20.9%	239
10	841	91	139	611	17.3%	105
11	2,404	891	47	1,467	19.9%	292
12	1,174	579	19	577	20.0%	115
13	329	2	0	327	19.9%	65
14	1,594	299	61	1,234	20.0%	247
15	526	202	0	324	20.0%	65
16	835	110	0	725	20.0%	145
17	537	32	9	495	16.0%	79
18	34	0	0	34	27.0%	9
19	495	60	0	435	28.5%	124
20	704	245	3	456	21.0%	96
21	1,159	430	3	726	21.3%	155
22	993	563	0	430	20.0%	86
23	577	270	12	295	19.9%	59
24	815	327	43	446	19.8%	88
25	664	261	24	379	19.3%	73
26	1,373	601	46	726	19.0%	138
27	1,058	256	30	772	17.6%	135
28	754	295	23	436	20.0%	87
29	1,008	534	61	413	20.0%	83
30	836	387	2	447	16.4%	73
31	302	8	0	294	20.0%	59
32	716	104	2	609	20.0%	122
33	560	145	0	416	19.2%	80
34	721	255	78	388	17.7%	69
35	1,051	528	15	508	20.0%	102
36	879	230	8	641	20.0%	128
37	551	274	5	272	20.0%	54
38	993	409	0	584	20.0%	117
39	657	179	38	440	20.0%	88

40	319	112	0	207	20.0%	41
41	735	276	9	451	18.0%	81
42	517	200	12	306	20.0%	61
43	653	201	0	451	18.2%	82
44	672	120	0	553	18.3%	101
46	1,078	373	48	657	20.0%	132
47	622	112	0	510	21.5%	110
48	540	0	0	540	20.0%	108
49	752	128	12	612	17.9%	109
50	858	280	20	557	17.3%	96
51	18	0	0	18	40.0%	7
52	1,176	323	118	734	19.9%	146
53	160	52	20	88	15.0%	13
54	857	36	110	711	18.0%	128
55	535	0	0	535	29.0%	155
56	334	0	0	334	24.6%	82
57	337	0	0	337	22.9%	77
58	402	0	0	402	25.4%	102
59	502	0	0	502	24.9%	125
60	767	95	11	661	21.8%	144
61	1,441	555	335	551	18.5%	102
62	1,035	213	323	499	22.6%	113
63	788	170	82	536	22.3%	120
64	1,101	460	23	618	20.3%	126
65	1,872	744	154	974	21.4%	209
66	808	458	89	261	16.2%	42
67	685	183	9	492	26.8%	132
68	2,480	271	783	1,425	21.7%	309
69	1,669	416	438	814	27.7%	225
70	981	116	104	761	18.6%	141
71	13	0	0	13	32.5%	4
72	35	0	0	35	25.0%	9
73	875	0	0	875	22.3%	195
74	18	0	0	18	21.1%	0
77	99	0	0	99	26.0%	26
78	59	0	0	59	25.0%	15
79	127	0	0	127	25.0%	32
80	782	208	14	559	19.8%	110
81	165	0	0	165	20.0%	33
82	62	0	0	62	40.0%	25
83	21	0	0	21	40.0%	8
84	25	0	0	25	25.0%	6
85	44	0	0	44	25.0%	11
86	22	0	0	22	25.0%	6
87	20	0	0	20	20.0%	4
88	262	49	9	204	20.0%	41

Table 2: Minimum Snow Interception Cover (SIC) Attributes by Snowpack Zone

Snowpack Zone (from Table 2)	Minimum Stand Age (years)	Minimum Canopy Closure (Dominants and Co-dominants)
Shallow	101	16-35 %
Moderate: MS and IDF	101	45 %
Moderate: ICH	121	45 %
Deep	121	55 %

Table 3: Boundary Snowpack Zones

Snowpack Zone	Ecosystem Units
Shallow	PPxh IDFxh IDFdm1 (<1000 meters asl with aspects 135 – 270°)
Moderate	ICHdw IDFdm1 (all sub-zone sites except above) MS (all)
Deep	ICHmk1 ICHmw2 ESSF (all)

Signed this 8th day of May, 2006
Chris Trumpy, Deputy Minister
Ministry of Environment

Appendix 1

Note that the appendix is not part of the legal Order for U-8-008. It is intended to provide guidance for meeting the General Wildlife Measures addressed in the order.

1. In the Shallow Snowpack Zone, lower canopy closure stands within the range (i.e. 16- 35%) are acceptable for SIC provided it is comprised of large diameter Douglas-fir with large crowns. If those attributes are not available the canopy closure requirement should be increased to the higher ends of the range.

2. Guidance for GWMs 7 and 9: In some planning cells the minimum SIC attributes may not currently be present. Table 4 describes a "step-down" procedure to determine which stand will meet the desired attributes in the shortest period of time. In all cases, the stands comprised of the oldest aged Douglas-fir with the highest canopy closure are preferred. Column 1 describes the amount of Douglas-fir in a stand. Column 2 depicts the stand age. Column 3 depicts canopy closure. To determine if the stand is the most suitable to meet the SIC in the shortest period of time, there should not be any stands that have a higher 'rank order' that are not identified as SIC.

Table 4: Meeting SIC Requirements in the Shortest Period of Time

Rank Order	Species	Age (years)	Canopy Closure (%)
1	Douglas-fir > 70 %	> 120	> 55
2	Douglas-fir > 70%	> 120	> 45
3	Douglas-fir > 70%	> 120	> 35
4	Douglas-fir > 70%	> 100	> 55
5	Douglas-fir > 70%	> 100	> 45
6	Douglas-fir > 70%	> 100	> 35
7	Douglas-fir > 50%	> 120	> 55
8	Douglas-fir > 50%	> 120	> 45
9	Douglas-fir > 50%	> 120	> 35
10	Douglas-fir > 50%	> 100	> 55
11	Douglas-fir > 50%	> 100	> 45
12	Douglas-fir > 50%	> 101	> 35
13	Douglas-fir > 70%	> 80	> 55
14	Douglas-fir > 70%	> 80	> 45
15	Douglas-fir > 70%	> 80	> 35
16	Douglas-fir > 30%	> 120	> 55
17	Douglas-fir > 30%	> 120	> 45
18	Douglas-fir > 30%	> 120	> 35
19	Douglas-fir > 30%	> 100	> 55
20	Douglas-fir > 30%	> 100	> 45
21	Douglas-fir > 30%	> 100	> 35
22	Douglas-fir > 50%	> 80	> 55
23	Douglas-fir > 50%	> 80	> 45
24	Douglas-fir > 50%	> 80	> 35
25	Douglas-fir > 70%	> 120	> 25
26	Douglas-fir > 70%	> 100	> 25

27	Douglas-fir > 50%	> 120	> 25
28	Douglas-fir > 50%	> 100	> 25
29	Douglas-fir > 30%	> 120	> 25
30	Douglas-fir > 30%	> 100	> 25
31	Douglas-fir > 70%	> 80	> 25
32	Douglas-fir > 50%	> 80	> 25
33	Douglas-fir > 30%	> 80	> 25
34	Douglas-fir > 70%	> 60	> 55
35	Douglas-fir > 70%	> 60	> 45
36	Douglas-fir > 70%	> 60	> 35
37	Douglas-fir > 5%	> 80	> 45
38	Douglas-fir > 5%	> 60	> 35
39	Any conifer leading	> 60	> 35

3. As there may be inconsistent goals between mule deer winter range snow interception cover and fire maintained ecosystem restoration (FMER) areas and open range, it is not appropriate to locate SIC on those sites. All SIC values were determined on the net area. It is recognized that the FMER used in this Order may be revised.
4. Where available, snow interception cover is to be well distributed throughout the planning cell in order to minimize the distance to cover, and maximize the opportunity for ungulate use of the entire winter range.
5. It is recognized that the information that was used to derive Table 1 was the best available the time (eg. land ownership), and subsequent refinements to that data may require that the Table 1 outputs are re-determined.
6. Planning cells do not include parks or protected areas and therefore SIC retention values are not intended to be applied within parks or protected areas.
7. The following Table was used to track discussions and agreements during the development of the Boundary UWR FRPA GAR Orders. The following table is the 10th version, with the original version being developed in April of 2003.

   All General Wildlife Measures (GWMs) that are currently applicable are found in the appropriate Orders (i.e. there is nothing in the Table that is deemed to be additional to the GWMs found in the Orders). Any inconsistencies between the two (the Orders and the Table) shall default to the Orders, as they have been formally established by the Ministry of Environment.

   The Table is provided as formal documentation of the agreements reached, and can also be used as a concise 1 page summary related to GWMs and forestry practices for the six ungulates in the Boundary TSA.

Table: Boundary Ungulate Winter Range Planning Cell GWMs for Snow Interception Cover (SIC), Forage and Access Management Dec.7/05 Draft

Ungulate Species[1]	Snowpack Zone with Biogeoclimatic Ecosystem Classification (BEC) Unit	Minimum Per Cent of Cell in SIC[2]	SIC Definition (Height or Age and Canopy Closure)	Forage Requirement[3]	Specific Requirements/Comments	Access
Mule Deer Elk	Shallow: PP IDFxh IDFdm1 (<1000 meters asl with aspects[4] 135 – 270°)	15	Age >/= 100 years	N/A[5]	SIC areas are not permanent set asides, and may be harvested when replacement stands having acceptable attributes are available (i.e. meet the minimum age requirements and are comprised of high canopy closure Douglas-fir). In areas where maps indicate an overlap with moose and deer winter range, only deer objectives and areas apply. In the Shallow Snowpack Zone, low canopy closure stands (16 – 35%) are acceptable SIC provided they are comprised of large diameter Douglas-fir with large crowns. In the Moderate Snowpack Zone, the forage requirement can be attained over a maximum of three adjacent planning cells In the Moderate and Deep Snowpack Zones, the initial allocation of SIC is to be located in stands with the oldest Douglas-fir with the highest canopy closure.	Road development in mule deer winter range is to include a road closure and/or management strategy to reduce the impacts of development on winter habitat. Minimize, to the extent practical, the amount of road accessible to 2 or 4 wheel drive vehicles (cars/trucks). Avoid, to the extent practicable, road or trail development in areas required for SIC, unless selection harvest is proposed. Open road densities (accessible to 4 wheel drive cars/trucks) are not to exceed 3 km per km^2.
	Moderate: ICHdw IDFdm1 (all sub-zone sites except above) MS (all)	ICHdw - 25 MS – 25 IDFdm - 20	Age >/= 100 years, except in MS and ICHdw where Age >/= 120 years Canopy closure > 45%[6]	< 33% of cell < 20 years of age		
	Deep: ICHmk1 ICHmw2 ESSF (all)	40	Age >/= 120 years; canopy closure > 55%[6]	N/A[5]		
Bighorn Sheep	All BEC Units	The same as for deer/elk	The same as for deer/elk	N/A[5]	The access objective for bighorn sheep takes precedence where bighorn sheep winter range overlaps with other species winter range	Avoid, to the extent practicable, permanent road development within Bighorn Sheep winter range.
Moose[7]	All BEC Units	20	>/= 16 meters in height	< 40% of cell < 30 years of age	To the extent practicable, retain at least 50% of the riparian management area of S1, S2, S3 and S5 streams and W1, W3 and W5 wetlands in stands =/> 16 m in height.	N/A
Mtn. Goat	All BEC Units	25 for clear cut, and 50 for selection, silvicultural systems	>/= 16 meters in height	N/A[5]	Utilize selection harvest systems to the extent practicable. Where selection harvest systems are not practicable, clearcut blocks are not to exceed 5 ha. Where mountain goat winter range overlaps with the winter range of other species, both access objectives apply. In areas of overlap, mule deer SIC objectives take precedence.	Avoid logging, road use or development, from December 1 to June 1.

Table 1 Explanatory Notes:

1 – it is assumed that white-tailed deer habitat requirements are adequately addressed by the objectives for the other ungulates
2 - FMER areas do not contribute to planning cell area calculations; SIC is not to be located on FMER areas; where planning cells contain more than one snowpack zone, then the cell minimum will be pro-rated based on the area within each snowpack zone
3 – relates to amount of area (% of planning cell) in young managed forest stands
4 – forage productivity is important in these areas, and will be managed for by 'best management practices', and/or objectives for range/livestock management
5 – where the specified canopy closure is not available within the cell, then the next highest canopy closure class is to be used