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RE: FL A30171 Updated CP 404 Laird Creek Ungulate Winter Range Analysis

This ungulate winter range (UWR) analysis has been completed for Cooper Creek Cedar Ltd. to ensure that the minimum UWR forest cover requirements are being met for proposed FL A30171 CP 404, including associated roads. CP 404 originally consisted of two planned blocks, Blocks 3 and 4, but was recently revised to include two additional blocks, Blocks 6 and 15. This updated Ungulate Winter Range analysis for CP 404 replaces the original analysis dated August 17, 2020. The ungulate winter range forest cover requirements that apply to FL A30171 CP 404 were established on December 4th, 2006, under Government Actions Regulation Order – Ungulate Winter Range #U-4-001 – West Kootenay (Arrow TSA, Kootenay Lake TSA, Revelstoke TSA, TFL 3, TFL 23), and most recently amended on Feb 7th, 2007. The above requirements were applied in this analysis.

The proposed development is located within UWR Management Unit 178, within polygons 178-MD-292, 178-MD-293 and 178-MD-294. The priority species for Management Unit 178 is Mule Deer. The ungulate winter range attribute for polygons 178-MD-292 and 178-MD-294 is Snow Interception Cover. The ungulate winter range attribute for polygon 178-MD-293 is Forage Area. The predominant BEC subzone is ICHdw.

The forest cover data used in this analysis is based on the most current VRI downloaded from the BC Data Warehouse on August 12, 2020. The VRI Reference Year is 2005, with ages projected to 2020. Existing cut blocks and approved Cutting Permits were downloaded in June, 2020, from RESULTS Opening/Forest Cover data and FTA. The planned CP 404 cutblocks reflects their configuration on December 8, 2020.

Private land, Parks and Protected Areas, and broadleaf-leading stands (as defined in the BC Land Cover Classification Scheme) are excluded from the application of these general wildlife measures. As such, these areas have been identified and are excluded from this analysis (i.e. they do not contribute to the area over which the minimum forest cover is applied, nor do they contribute to meeting the forest retention requirements).

Summary of UWR Forest Cover Requirements

The UWR attributes and forest cover requirements for each UWR Polygon are summarized in the following table:

Ungulate Winter Range Forest Cover Requirements

MU	BEC	UWR Attribute	Priority Species	Minimum Retention	Maximum Disturbance
178-MD-292	ICHdw	Snow Interception Cover	Mule Deer	30% \geq 81 yrs and \geq 40% Crown Closure	40% < 21 yrs
178-MD-293	ICHdw	Forage Area	Mule Deer	10% \geq 81 yrs, dispersed or in patches	40% < 21 yrs
178-MD-294	ICHdw	Snow Interception Cover	Mule Deer	30% \geq 81 yrs and \geq 40% Crown Closure	40% < 21 yrs

Summary of UWR Analysis for Management Unit 178, Polygon 178-MD-292

ICHdw- Mule Deer

Snow Interception (Minimum Forest Cover): 30% ≥ 81 years, Crown Closure ≥ 40%

Early Seral (Maximum Disturbance): 40% < 21 years

The total area of Management Unit 178, Polygon 178-MD-292, is 842 ha. The total area excluding private land, parks and protected areas, and broadleaf-leading stands is 289.1 ha. This is the area that is subject to the application of the general wildlife measures.

Currently, 186 ha, or 64% of the polygon area meets the UWR snow interception forest cover requirements. Approximately 0.5 ha of planned CP 404 harvest is located within this UWR unit. Post CP 404 development, the UWR forest cover requirements for snow-interception will be met, at **64.2% post development**.

In terms of the early seral forest cover requirements, the proposed development is well within the limits: not more than 40% of the Crown forested land base (excluding broadleaf leading stands) being less than 21 yrs of age. Currently, 18 ha or **6.2%** of the UWR Unit analysis area is less than 21 years of age. Post development, this number will increase slightly to 18.5 ha or **6.4%**, which remains well below the maximum threshold of 40%.

Analysis Unit: UWR Polygon 178-MD-292

Total Area of UWR Polygon : **842 ha**

Total Area of UWR Polygon excluding private land, parks, and broadleaf-leading stands: **289.1 ha**

Cover Type	Cover Requirement	Existing Condition: Total Area of UWR Polygon (excluding private land, parks, and broadleaf stands) meeting UWR cover requirement	Post-development: Total Area of UWR Polygon (excluding private land, parks, and broadleaf stands) meeting UWR cover requirement
Snow Interception – Mule Deer ICHdw	≥30% of UWR Unit ≥81 yrs and ≥ 40% crown closure	186 ha (64.3%)	185.5 ha (64.2%)
Early Seral Maximum	≤ 40% of UWR Unit < 21 yrs.	18 ha (6.2%)	18.5 (6.4%)

Summary of UWR Analysis for Management Unit 178, Polygon 178-MD-293

ICHdw- Mule Deer

Forage Area (Minimum Forest Cover): 10% \geq 81 years, dispersed or in patches

Early Seral (Maximum Disturbance): 40% < 21 years

The total area of Management Unit 178, Polygon 178-MD_293, is 405 ha. The total area excluding private land, parks and protected areas, and broadleaf-leading stands is 289.1 ha. This is the area that is subject to the application of the general wildlife measures.

Currently, 227.9 ha, or 77% of the polygon area meets the UWR forage area requirements. Approximately 28.9 ha of planned CP 404 harvest is located within this UWR unit. Post CP 404 development, the UWR forest cover requirements for forage will be met, at **67.3% post development.**

In terms of the early seral forest cover requirements, the proposed development is well within the limits: not more than 40% of the Crown forested land base (excluding broadleaf leading stands) being less than 21 yrs of age. Currently, 48.3 ha or **16.3%** of the UWR Unit analysis area is less than 21 years of age. Post development, this number will increase to 76.9 ha or **26.0%**, which remains well below the maximum threshold of 40%.

Analysis Unit: UWR Polygon 178-MD-293

Total Area of UWR Polygon : **405 ha**

Total Area of UWR Polygon excluding private land, parks, and broadleaf-leading stands: **295.8 ha**

Cover Type	Cover Requirement	Existing Condition: Total Area of UWR Polygon (excluding private land, parks, and broadleaf stands) meeting UWR cover requirement	Post-development: Total Area of UWR Polygon (excluding private land, parks, and broadleaf stands) meeting UWR cover requirement
Forage Area – Mule Deer ICHdw	\geq 10% of UWR Unit \geq 81 yrs , dispersed or in patches	227.9 ha (77.0%)	199.0 ha (67.3%)
Early Seral Maximum	\leq 40% of UWR Unit < 21 yrs.	48.3ha (16.3%)	76.9 (26.0%)

Summary of UWR Analysis for Management Unit 178, Polygon 178-MD-294

ICHdw- Mule Deer

Snow Interception (Minimum Forest Cover): 30% ≥ 81 years, Crown Closure ≥ 40%

Early Seral (Maximum Disturbance): 40% < 21 years

The total area of Management Unit 178, Polygon 178-MD-294 is 30 ha. The total area excluding private land, parks and protected areas, and broadleaf-leading stands is 22 ha. This is the area that is subject to the application of the general wildlife measures.

In terms of snow interception cover and early seral forest cover requirements, the proposed development meets the requirements prescribed for UWR Management Unit 178. The results for Polygon 178-MD-294 is summarized below, but on its own, is not indicative of whether the UWR requirements are met. The targets are assessed at the UWR Management Unit level, i.e. over the combined area of the affected polygons within UWR Unit 178.

Currently, 8.7 ha, or 39.5% of the polygon area meets the UWR snow interception forest cover requirements. Approximately 4.6 ha of planned CP 404 harvest is located within this UWR polygon. Post CP 404 development, the UWR snow interception forest cover within this polygon will be 4.2 ha (19.1%), which as already noted, still meets the 30% threshold when combined with the other affected polygons in UWR Unit 178.

In terms of the early seral forest cover requirements, the proposed development meets the early seral forest cover requirements prescribed for UWR Management Unit 178. Currently, 11.7 ha or **53.2%** of the UWR Unit analysis area is less than 21 years of age. Post development, this number will increase to 16.2 ha or **73.6%**, which as already noted, still meets the 40% threshold when combined with the other affected polygons in UWR Unit 178.

Analysis Unit: UWR Polygon 178-MD-294

Total Area of UWR Polygon : **30.0 ha**

Total Area of UWR Polygon excluding private land, parks, and broadleaf-leading stands: **22.0 ha**

Cover Type	Cover Requirement	Existing Condition: Total Area of UWR Polygon (excluding private land, parks, and broadleaf stands) meeting UWR cover requirement	Post-development: Total Area of UWR Polygon (excluding private land, parks, and broadleaf stands) meeting UWR cover requirement
Snow Interception – Mule Deer ICHdw	≥30% of UWR Unit ≥81 yrs and ≥ 40% crown closure	8.7 ha (39.5%)	4.2 ha (19.1%)
Early Seral Maximum	≤ 40% of UWR Unit < 21 yrs.	11.7 ha (53.2%)	16.2 (73.6%)

UWR Management Unit 178 Analysis Summary

The table below provides a summary of Management Unit 178. Post-development, Ungulate Winter Range Management Unit 178 meets the minimum retention and maximum disturbance requirements for snow interception cover and forage areas.

UNGULATE WINTER RANGE ANALYSIS SUMMARY FOR CP 404

UWR Analysis Results for Minimum Forest Cover Retention Requirements for Snow Interception Cover Area

MU	Total Area (ha)	UWR Area* (ha)	Minimum Retention Required (ha/(%))	Existing Condition (ha/(%))	Post-CP 404 Development (ha/(%))	Surplus/ (Deficit) (ha)
178-MD-292	842	289.1	86.7 (30%)	186.0 (64.3%)	185.5 (64.2%)	98.8
178-MD-294	30.0	22.0	6.6 (30%)	8.7 (39.5%)	4.2 (19.1%)	-2.4
178	872	311.1	93.3 (30%)	194.7 (62.6%)	189.7 (60.9%)	96.4

*UWR Area = Total Area minus private land, parks, and broadleaf-leading stands

UWR Analysis for Early Seral Maximum Disturbance (Max 40% less than 21 yrs) within Snow Interception Cover Area

MU	Total Area (ha)	UWR Area* (ha)	Maximum Disturbance (ha/(%))	Existing Condition (ha/(%))	Post- CP 404 Development (ha/(%))	Surplus/ (Deficit) (ha)
178-MD-292	842	289.1	115.6 (40%)	18 (6.2%)	18.5 (6.4%)	97.1
178-MD-294	30.0	22.0	8.8 (40%)	11.7 (53.2%)	16.2 (73.6%)	-7.4
178	872	311.1	124.4 (40%)	29.7 (9.5%)	34.7 (11.1%)	89.7

*UWR Area = Total Area excluding private land, parks, and broadleaf-leading stands

UWR Analysis Results for Minimum Forest Cover Retention Requirements for Forage Area

MU	Total Area (ha)	UWR Area* (ha)	Minimum Retention Required (ha/(%))	Existing Condition (ha/(%))	Post-CP 404 Development (ha/(%))	Surplus/ (Deficit) (ha)
178-MD-293	405	295.8	29.6 (10%)	227.9 (77%)	199.0 (67.3%)	169.4

*UWR Area = Total Area minus private land, parks, and broadleaf-leading stands

UWR Analysis for Early Seral Maximum Disturbance (Max 40% less than 21 yrs) within Forage Area

MU	Total Area (ha)	UWR Area* (ha)	Maximum Disturbance (ha/(%))	Existing Condition (ha/(%))	Post- CP 404 Development (ha/(%))	Surplus/ (Deficit) (ha)
178-MD-293	405	295.8	118.3 (40%)	48.3 (16.3%)	76.9 (26.0%)	41.4

*UWR Area = Total Area excluding private land, parks, and broadleaf-leading stands

Attached are the UWR Analysis maps for UWR Management Units 178-MD-292, 178-MD-293, and 178-MD-294, dated December 8, 2020.



Irene Strucel, RPF