



**MATERIAL SUPPORTING THE NOTICE, BUT NOT PART OF THE NOTICE.**

**INFORMATION CONCERNING WILDLIFE HABITAT FOR THE WINTER  
SURVIVAL OF UNGULATE SPECIES IN TFL 1**

This document is intended to provide background information and support to the legal framework of the notice of indicators of the amount, distribution and attributes of wildlife habitat required for the winter survival of ungulate species in TFL 1. This document is not part of the legal notice. Its purpose is to provide additional information for consideration by delegated decision makers and by those persons required to prepare results and strategies consistent with section 7(1) of the Forest Planning and Practices Regulation or act in a manner consistent with section 9(3) of the *Woodlot License Planning and Practices Regulation*.

**TFL 1**

**Amount:**

The total amounts included in the notice for both Goat and Moose are based on UWR polygons proposed by the Ministry of Water, Land and Air Protection and are consistent with the Kalum LRMP direction to protect ungulate winter range within the LRMP plan area. These proposed polygons have been sent out for consultation and are intended to form the basis of MWLAPs UWR submission for the Kalum LRMP area. Proposed UWR polygons are based on photo interpretation, map interpretations for topographic and vegetative features including slope steepness, aspect, elevation and forest cover, followed by winter confirmation surveys.

For Mountain Goat, the THLB impact statement in the notice is based on the projected timber harvest impacts (% of current AAC) of managing for goats within TFL 1 as taken from Table 2 in the Kalum LRMP Socio-Economic and Environmental Assessment Final Report: [http://srmwww.gov.bc.ca/ske/lrmp/kalum/lrmp\\_documents/MAA%20KalumLRMPFinalReport.pdf](http://srmwww.gov.bc.ca/ske/lrmp/kalum/lrmp_documents/MAA%20KalumLRMPFinalReport.pdf). A 1-2% THLB impact will be approximately 1282.9 – 2565.8 ha. This is based on a calculated THLB in the TSA of 128 294 ha (Kevin Eskelin, Ministry of Sustainable Resource Management, in June, 2004). This total THLB calculation is different than that in the AAC Rationale – 130 645 ha, likely due to partial reductions in the THLB that are not picked up by the spatial analysis conducted by MSRM.

No impact to timber supply will occur as a result of maintaining moose winter range within the Kalum LRMP area. Forestry and moose winter range management are compatible provided that access management, forage production and thermal/screening cover is properly planned.

**Distribution:**

Figures and spatial information (shapefiles) to support the amount and distribution statements are included in the folders titled “Figures” and “Spatial Data” on the following ftp site:

[ftp://ribftp.env.gov.bc.ca/pub/outgoing/cdc\\_data/Approved\\_FRPR\\_sec7\\_WLPPR\\_sec9\\_Notices\\_and\\_Supporting\\_Info/Ungulate\\_Winter\\_Range/Tree\\_Farm\\_Licenses/TFL\\_1/Supporting\\_Info/](ftp://ribftp.env.gov.bc.ca/pub/outgoing/cdc_data/Approved_FRPR_sec7_WLPPR_sec9_Notices_and_Supporting_Info/Ungulate_Winter_Range/Tree_Farm_Licenses/TFL_1/Supporting_Info/)

Inclusion of draft and proposed Ungulate Winter Range boundaries in the supporting information does not prejudice the review and comment that may be ongoing around these Ungulate Winter Ranges. Where Ungulate Winter Ranges have not been through the full review and comment process, MWLAP will continue to work with affected parties to address the Ungulate Winter Range boundaries.

Figures 1 and 2 show the mountain goat and moose winter range polygons proposed by the Ministry of Water, Land and Air Protection within the Kalum TSA., TFL 1 and TFL 41.

The distribution statement for Mountain Goats indicates that winter range management should be distributed across a variety of habitats. This variety is necessary to fulfil their requirements for food accessibility and reduced mobility costs. Use of closed canopy forest cover in winter is well documented and mountain goats will move into these forested areas to avoid heavy wet snows.

#### **Attributes:**

Reference citations for specific UWR attributes within the notice are noted below for scientific defensibility.

#### **I) Mountain Goats**

- a) escape terrain being defined as rocky outcrops, cliffs or bluffs with slopes of 45<sup>0</sup> to 60<sup>0</sup>, and up to 400 meters from escape terrain (Pollard 2002, Keim 2002, McFetridge 1977, Fox 1983, cited in Fox et al. 1989, Schoen and Kirckhoff 1982, Smith 1985 state that 90% to 95% of year-round use occurs within 400 m of escape terrain, and commonly within 250 m. In either case, a 250 m buffer versus a 400 m buffer to escape terrain, the point is that the buffers are not an arbitrary width but are reflective of the quality of habitat, its location with respect to escape terrain, its present use, and its potential for use);
- b) aspects within 115<sup>0</sup> to 280<sup>0</sup> azimuth (Keim 2002; supporting evidence as cited in Pollard 2003, Pollard 2000(a) & Pollard 2000(b));
- e) in forested sites, canopy old-growth cover between 60-80% (Russell 1974) to effectively intercept snow and make understory vegetation and arboreal lichen litterfall available and accessible to mountain goats;

In addition, attribute I f) – mountain goat refuge should consider the seasonality of mountain goat winter range for the North Coast is defined as being from November to mid-June; refuge is provided if human access management measures are in place.

#### **II) Moose**

- a) primarily low elevation riparian communities, especially along dynamic riverine systems where much of the riparian vegetation is in a sub-climax seral stage (Pollard 2000(c));

- b) preferred winter food species being willow, cottonwood, red-osier dogwood, highbush cranberry, *Vaccinium* spp., and cedar (Pollard 2001); fir is added in from personal observation by L. Vanderstar
- c) sufficient forest cover (minimum of 65 % crown closure) to provide for snow interception where snow depths begin to restrict moose mobility (65 cm +) (Vanderstar 1994);
- d) sufficient food availability within 80 meters of security cover (Vanderstar 1994);

### **References:**

Fox, J. 1983. Constraints on Winter Habitat Selection by Mountain Goats in Alaska. Seattle: College of Forest Resources, University of Washington; Ph.D. dissertation.

Fox, J., C. Smith, and J. Schoen. 1989. Relation between Mountain Goats and their Habitat in Southeastern Alaska. U.S. Forest Service, General Technical Report PNW-246.

Keim, J. 2002. Modeling Core Winter Habitats from Habitat Selection and Spatial Movements of Collared Mountain Goats in the Taku River Drainage of North-West British Columbia. Unpublished version.

McFetridge, R. 1977. Strategy of Resource Use by Mountain Goat Nursery Groups. In W. Samuel and W. MacGregor eds. Proceedings, First International Mountain Goat Symposium; 1977 Fed. 19: Kalispell, M. Victoria, BC: Province of British Columbia, Ministry of Recreation and Conservation, Fish and Wildlife Branch: 169-173.

Pollard, B. 2000(a). Critical Mountain Goat Winter Range Mapping as Developed for the TFL #1 Timber Supply Impact Assessment.

Pollard, B. 2000(b). Critical Mountain Goat Winter Range Mapping in TFL #41 for a Timber Supply Impact Assessment.

Pollard, B. 2000(c). Review and Adjustment of Moose Winter Range Mapping within the Kalum South Resource Area.

Pollard, B. 2001. Moose Winter Range Mapping for the North Coast Forest District.

Pollard, B. 2002. Mountain Goat Winter Range Mapping for the North Coast Forest District.

Pollard, B. 2003. Winter Range Mapping For Mountain Goats in the East Kalum. East Skeena & Skeena South

Russell, D. 1974. Grizzly Bear – Mountain Goat Investigations in Knight Inlet, B.C. British Columbia Fish and Wildlife Branch, Nanaimo, B.C.

Schoen, J. and M. Kirckhoff. 1982. Habitat Use by Mountain Goats in Southeast Alaska. Juneau, AK: Alaska Department of Fish and Game; Federal Aid in Wildlife Restoration Project W-17-10, 11 and W-21-1, 2 final report; job 12.4R.

Smith, C. 1985. Habitat Use by Mountain Goats in Southeastern Alaska. Juneau, AK. Alaska Department of Fish and Game; Federal Aid in Wildlife Restoration Project W-22-2; final report; job 12.4R

Vanderstar, L. 1994. Special Management Zone Draft Guidelines – Bulkley LRMP. B.C. Environment. Unpublished.