ORDER OF THE MINISTER OF FORESTS, LANDS, NATURAL RESOURCE OPERATIONS AND RURAL DEVELOPMENT

Forest and Range Practices Act

Ministerial Order No.

Wildlife Habitat Area 7-002 for Grizzly Bear (Ursus arctos)

Stuart Nechako Forest District

1. I, Katrine Conroy, Minister of Forests, Lands, Natural Resource Operations and Rural Development, being satisfied that the following described area contains habitat that is necessary to meet the habitat requirements for grizzly bear (*Ursus arctos*); and the habitat requires special management that is not otherwise provided for under the Government Action Regulation (GAR) or another enactment, order that:

   a) the areas shown on the map attached as Schedule A, with the centre point of the line on the attached Schedule A establishing the area boundaries, as WHA 7-002 contained in the wildlife habitat area (WHA) spatial layer stored in the British Columbia Geographic Warehouse (WHSE_WILDLIFE_MANAGEMENT.WCP_WILDLIFE_HABITAT_ AREA_POLY) are established as wildlife habitat area WHA 7-002 for grizzly bear; and

   b) if there is a discrepancy between the areas shown on the map attached as Schedule A and the WHA spatial layer stored in the British Columbia Geographic Warehouse (WHSE_WILDLIFE_MANAGEMENT.WCP_WILDLIFE_HABITAT_AREA_POLY), the areas as detailed in the WHA spatial layer will take precedent.

2. The following are established for the WHA 7-002:

   a) the general wildlife measures (GWMs) outlined in Schedule 1; and

   b) the objective set out in Schedule 2.

3. Definitions:

   Unless otherwise specified, 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.

(This part is for administrative purposes only and is not part of the Order.)

Authority under which Order is made:

Regulation and section: Government Actions Regulation (B.C. Reg. 582/2004) ss. 9(2), 10(1) and 10(2)

In this order and the schedules to this order:

a) "ant habitat" means habitat features that support the establishment of ant (*Formicidae spp.*) colonies, including a mix of coarse woody debris or stumps other than Douglas-fir with a minimum diameter of 22.5 centimetres and a coarse woody debris length of 50.0 centimetres;
b) "clump" means a minimum of four Douglas-fir greater than 22.5 centimetres diameter at breast height (dbh) where the spacing between individual trees is not more than 10 metres between any two trees; and
c) "deconstruct" means the treatment the access structure is deactivated and is treated as part of the net area to be reforested.

Schedule 1 – General Wildlife Measures (GWMs):

Access

1. All access structures must be Deconstructed.

Harvesting

2. Bear dens will be identified and included within wildlife tree patches or other retention area, with a minimum reserve of 60 metres around the den opening.
3. Avoid winter forestry development (including harvesting) between November 16th and April 16th.
4. The following requirements apply to primary forest activities within each cutblock:
   a. leave a minimum of 4.0 cubic meters of coarse woody debris per hectare averaged over the cutblock of Ant Habitat in the SBSdw3 02, 03 and 04 site series; and
   b. outside of roads and roadside processing and decking areas, retain all Douglas-fir greater than 52.5 centimetres dbh.

Silviculture

5. Do not use domestic sheep, goats or cattle for vegetation management.

Schedule 2 – Objective:

1. Maintain through time the recruitment of large diameter old Douglas-fir by retaining a range of diverse age and size classes of Douglas-fir in a windfirm and undamaged condition. Trees less than 52.5cm dbh should be retained in undisturbed Clumps.

December 4, 2020
Date

Greg Rawling, Regional Executive Director,
Omineca Region, FLNRORD for
Minister of Forests, Lands, Natural Resource
Operations and Rural Development

The following information in the Supplemental Document is provided as background information and support to the order establishing WHA 7-002. The Supplemental Document is not part of the legal order.

Additional guidance

The Tl'o Ba WHA 7-002 is part of the Nation Grizzly Bear Population Unit. A DNA mark-recapture study conducted in 2003 indicated a very low grizzly bear density within the Population Unit; likely below carrying capacity (Mowat & Fear, 2004). This density was estimated in 2012 at 10 grizzly bears/1,000km^2 (BC MFLNRO, 2012); higher than the 2003 estimate, but still a low density. Tl'o Ba WHA 7-002 contains critical grizzly bear denning habitat within this larger Nation Grizzly Bear Population Unit (Hodder et al., 2014).

The intent of Tl'o Ba WHA 7-002 is to manage the supply of high capability denning habitat and mitigate disturbance risk to grizzly bears. Maintaining this supply of critical habitat will help to mitigate risks to grizzly bears on the local landscape. The Tl'o Ba WHA is characterised by a xeric SBSdw3/02 site series on warmer slope aspects, with a high likelihood of providing important late fall/early spring forage habitat in the form of bearberry, also known as kinnikinnick (*Arctostaphylos usa-ursi*) (Auditor General of British Columbia, 2017).

A best management practice document has been produced specifically related to the North Area of British Columbia and provides valuable information on strategies that can minimize impacts to grizzly bears from industrial operations (Ministry of Forests, Lands, Natural Resource Operations 2014).

Further to GWM 1: Road development must be considered when evaluating the effects of forest harvest on grizzly bears. Roads are shown to have a significant negative effect on grizzly bear survival and grizzly bear population sustainability (Ciarniello & de Groot, 2014). A road density of 0.6 km/km^2 is a recognized as a critical threshold for grizzly bear habitat in British Columbia (Boulanger &Stenhouse, 2014). Therefore, adherence to road densities less than 0.6 km/km^2 is considered important for maintaining optimal grizzly bear habitat.

The intent of GWM 1 is to manage the risk incurred by roads in grizzly bear habitat. Therefore, all new access structures within the management zone will be temporary in nature and deconstructed. The deconstruction intent is to treat these access structures with silviculture practices consistent with the associated cutblock.

Deconstruction of access structures prior to planting may be treated in a manner that deploys a rough and loose configuration with additional root wads and coarse woody debris placed on the running surface. A description of the process to create a rough and loose

surface configuration is described in the document, "*Making sites rough and loose: a soil adjustment technique*" (Polster, 2013). The addition of root wads and other coarse woody debris to the deconstructed road surface will serve to provide ant habitat.

Further to GWM 2 and 3): Grizzly bears may hibernate in dens for up to seven months and may be easily aroused during hibernation; a strategy that leaves them particularly vulnerable to disturbance during the winter season (Hodder et al., 2014; Linnell et al., 2000). WHA 7-002 is designed to address and maintain critical denning habitat on the landscape for grizzly bear reproduction and survival. WHA 7-002 has been identified through Resource Selection Function modelling (Hodder et al., 2014) to have a <u>High</u> likelihood to support mid to upper elevation excavated dens, or natural cavity rock dens in caves or under boulders. All bear dens within a proposed forest activity area will be identified and managed within an appropriate retention area.

Grizzly bears have been shown to re-use den sites (Ciarniello et al., 2005). Therefore, the possibility of persecution or harm is real. All identified bear dens within this WHA that are in or contiguous to a cutblock or road should be included within wildlife tree patches or other retention area, with a minimum reserve of 60 metres around the den opening. Information regarding specific locations of dens should be kept secure and confidential, as grizzly bears in dens are extremely vulnerable.

Further to GWM 4a): Ants can form an important component of grizzly bear diet (Munro et al., 2006). The drier site series characterizing portions of WHA 7-002 may provide favourable conditions for the development of suitable ant habitat, which in turn, grizzly bears will forage on. The intent of GWM 4a) is to enable the provision of suitable ant habitat for important ant species such as carpenter ants (*Camponotus herculeanus*). Carpenter ants require rotting coarse woody debris (CWD) of sufficient diameter to start a colony and must select nesting habitat that maximizes heat gain in a cooler climate (Lindgren & MacIsaac, 2002). An ideal nesting substrate should gain heat quickly, be of sufficient mass to hold that heat as air temperature decreases and be elevated above the soil to maximize sun exposure (Higgins et al., 2006). Within the appropriate drier site series, maintaining CWD of sufficient diameter and length may be facilitated through the provision of suitable unburned roadside debris pile(s). The required amount of CWD may be averaged over the total area within the relevant site series within the cutblock. Wherever possible, choose material of a sufficient size and orientation that will remain exposed to the sun as much as possible over time.

Further to GWM 4b): Rationale for leaving larger older Douglas-fir (dominant canopy position):

The following information regarding Douglas-fir retention was provided by Bruce Rogers, Research Ecologist, Omineca/North East BC Ministry of Forests, Lands and Natural Resource Operations during an interview with Joanne Vinnedge (Rogers, May 26, 2017) and an email with Ken Sehn (Rogers, 2020). When considering Douglas-fir retention, the application of a 5-meter machine-free zone is important for protection of the sensitive root system and maintaining the trees in an undisturbed clump will serve to retain understory and protect the trees against stressful water deficits. In addition, the retention of high stumps around the tree will provide additional protection from harvest or site prep damage. Large, older Douglas-fir are often fire veterans that have already endured 1 to 3 stand replacing events and have physiological adaptation to fire disturbance. Compared with co-dominant and supressed layer trees, dominant trees are better at coping with the stand removal around them and are thus better candidates for single tree retention For example, dominant Douglas-fir trees have a higher taper with more wind resistance and are better adapted to sudden changes in moisture availability. If left in groups with other species and cohorts they contribute significantly to snow interception capacity and eventually when recruited as CWD they provide optimal habitat for many carnivore prey species (e.g. rodents, mustelids, hares). Tall, dominant Douglas-fir also provide more dispersed seed-rain for natural regeneration which is important for maintaining natural genetic stock. Mature Douglas-fir will have sustained more damage over time than younger cohorts beneath them and may have higher levels of heart rot, a feature that can be present in both live and dead trees.

Large diameter, mature Douglas-fir with heart rot are a key attributes to provide suitable substrate for basal den excavation (Ciarniello et al., 2005). The retention of Douglas-fir trees as standing trees, snags and downed logs to serve as current or future grizzly bear denning habitat should be undertaken in a manner that serves to protect and maintain Douglas-fir.

Further to Objective 1: Rationale for leaving younger Douglas-fir (co-dominant canopy position):

The following information regarding Douglas-fir retention was provided by Bruce Rogers, Research Ecologist, Omineca/North East BC Ministry of Forests, Lands and Natural Resource Operations during an interview with Joanne Vinnedge (B. Rogers, personal communication, May 26, 2017). Often in denser stands of younger Douglas-fir trees, in which the canopy has not yet opened up (e.g. < 120 years of age), the trees can have biomass ratios (crown to root and crown to lower bole ratios) making them more susceptible to windthrow and moisture stress following stand removal around them. In terms of maintaining habitat suitability over the long term, it is important to maintain

younger Douglas-fir trees to provide future recruitment of habitat and a seed source for natural regeneration. In these stands, retaining Douglas-fir in groups and clumps of either single or mixed species will result in greater survival of the retention. Group retention is especially important on wetter receiving sites where younger Douglas-fir have established on raised microsites that typically have limited root anchorage stability or on sites with high wind exposure.

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