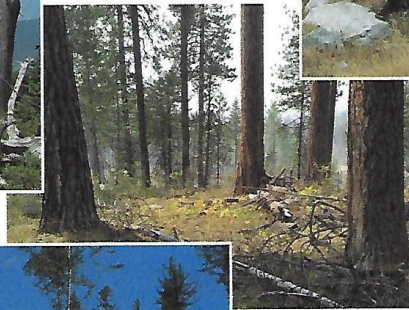
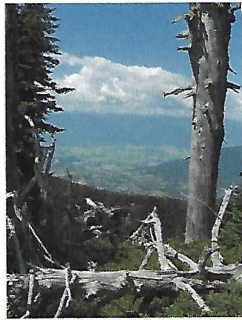




Creston Valley Forest Corporation Forest Stewardship Plan 2018-2023

Community Forest Agreement K3D



Signature of Person Required to Prepare the
Forest Stewardship Plan:

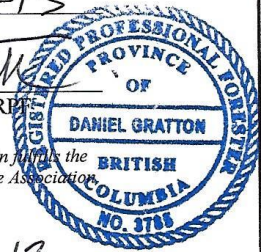
Name: *John Chisamore*
John Chisamore, Chair

Date: 2018-09-13

Signature of Preparing Forester:

Name: *Daniel Gratton*
Daniel Gratton, RPF

*"I certify that the work described herein meets the
standards expected of a member of the Association
of British Columbia Professionals"*



Date: 2018-09-13

Table of Contents

.....	
Table of Contents	i
Acronym Definitions	ii
1.0 Introduction	3
1.1 Application of Creston Valley Forest Corporation Forest Stewardship Plan 2018-2023.....	3
1.2 Term of the Forest Stewardship Plan	4
2.0 Description of the Forest Stewardship Plan Area	4
3.0 Other Plans	5
4.0 Objectives, Results and Strategies	5
4.1 Soil Management and Conservation Objective.....	6
4.2 Water - Community Watersheds	6
4.2.1 Water - Consumptive Streams (Domestic watersheds).....	7
4.3 Fisheries Sensitive Streams and Watersheds	8
4.4 General Biodiversity.....	9
4.4.1 Landscape Level Biodiversity	9
4.4.2 Wildlife Tree Retention Area – (Stand Level).....	9
4.4.3 Old and Mature Forests.....	10
4.4.4 Riparian Management	11
4.4.5 Wildlife Habitat Areas	13
4.5 Species at Risk	14
4.5.1 Wildlife	17
4.6 Cultural Heritage Resources	18
4.7 Visuals.....	18
4.8 Outdoor Recreation	19
4.8.1 Forest Education	20
4.9 Timber – Enhanced Resource Development Zones.....	21
5.0 Fire Maintained Ecosystems	21
5.1 Wildland Urban Interface Stocking Standards.....	21
6.0 Invasive Plants	22
7.0 Stocking Standards	24
7.1 Free Growing Dates.....	24
8.0 Cumulative Effect of Multiple Forest Stewardship Plans	24
9.0 Public Review and Comment.....	25

Appendices

Appendix A - Wildland Urban Interface Stocking Standards

Appendix B – Selkirk Resource District South Columbia Default Stocking Standards

Appendix C - Maps

Appendix D - Review and Comments

Appendix E – Draft 2018 Technical and Scientific Guidance for Implementing Current Old Forest

Retention Legislation and Policy in the Kootenay Boundary Higher Level Plan Order and Index of Old

Growthness Scorecards – Kootenay Boundary Region

Acronym Definitions

AAC	Allowable Annual Cut
ABCFP	Association of BC Forest Professionals
BEC	Biogeoclimatic Ecosystem Classification
CVFC	Creston Valley Forest Corporation
CWS	Community Watershed
DWS	Domestic Watershed
DDM	Delegated Decision-maker
ECA	Equivalent Clearcut-area
FDU	Forest Development Unit
<i>FPCBCA</i>	<i>Forest Practices Code of British Columbia Act</i>
FPC	Forest Practices Code
FPPR	<i>Forest Planning and Practices Regulation</i>
<i>FRPA</i>	<i>Forest and Range Practices Act</i>
FSP	Forest Stewardship Plan
GAR	Government Actions Regulation
KKTC	Ktunaxa Kinbasket Tribal Council
LRMP	Land and Resource Management Plan
MoE	Ministry of Environment
NRFL	Non-Replaceable Forest Licence
NTFP	Non-timber Forest Product
OGMA	Old Growth Management Area
QRP/QP	Qualified Register Professional/Qualified Professional
PoD	Point of Diversion
RMZ	Riparian Management Area
RP	Road Permit
RPF	Registered Professional Forester
RPPR	<i>Range Planning and Practices Regulation</i>
RRZ	Riparian Reserve Zone
RUP	Road Use Permit
SARA	Species at Risk Act
SNRFL	Salvage Non-Replaceable Forest Licence
TFL	Tree Farm Licence
TSA	Timber Supply Area
TSL	Timber Sale Licence
TSR	Timber Supply Review
VQO	Visual Quality Objective
WAP	Watershed Assessment Procedure
WCB	Workers' Compensation Board
WHA	Wildlife Habitat Area

1.0 Introduction

1.1 Application of Creston Valley Forest Corporation Forest Stewardship Plan 2018-2023

This Forest Stewardship Plan applies to the Creston Valley Forest Corporation’s (CVFC) Licence K3D management area (*Figure 1*). The Forest Development Units associated with CVFC’s management area are listed in Table 1 and are also provided in Appendix B of this plan. Table 1 also provides the gross areas of each Forest Development Unit, their respective Landscape Unit and Forest Development Unit name. This Forest Stewardship Plan applies to each Cutting Permit and Road Permit that is to be issued to Licence K3D during the term of this plan.

Figure 1

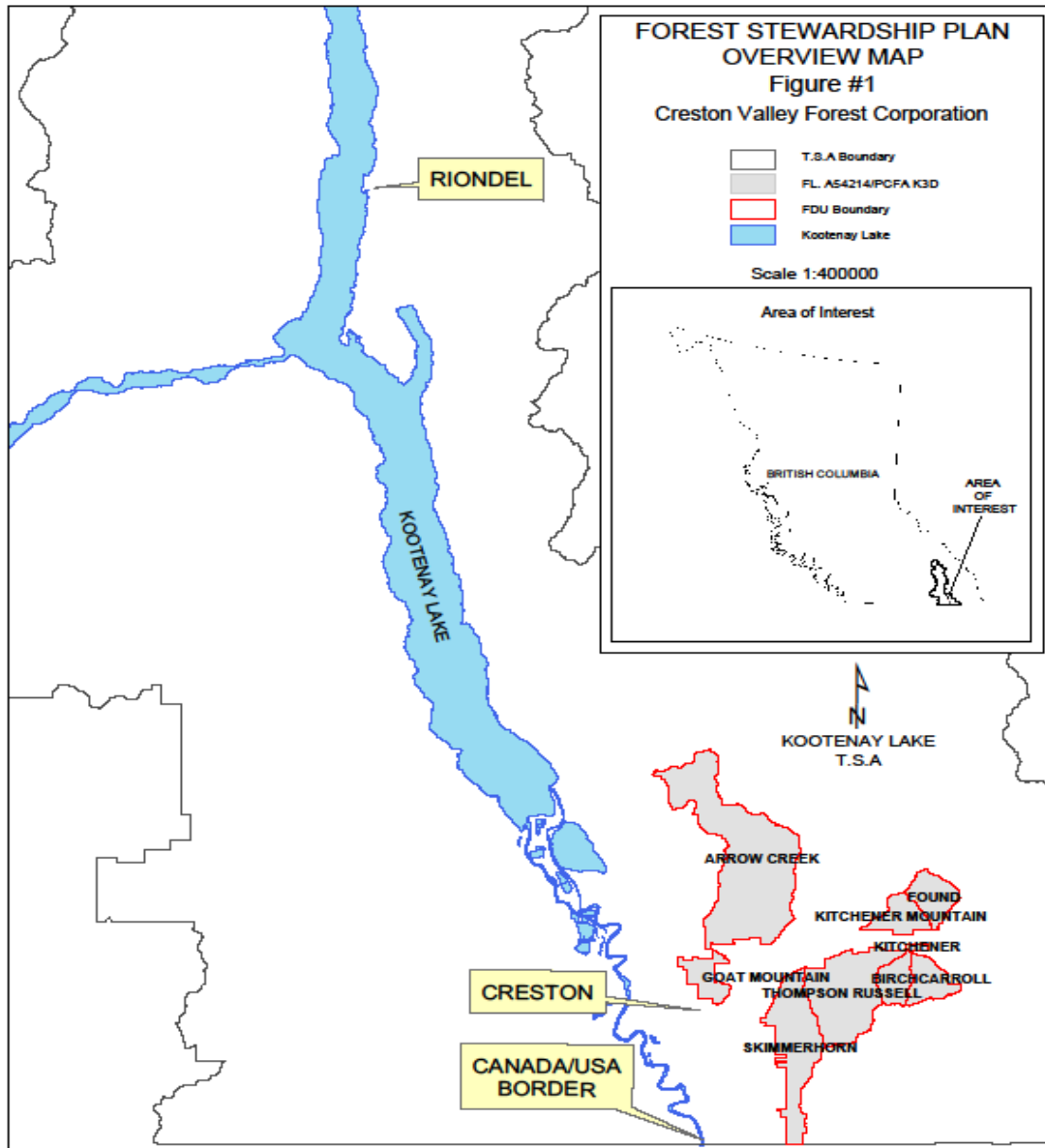


Table 1. CVFC's Forest Development Units.

FDU No.	FDU Name	Timber Supply Area	Landscape Unit	Gross Area (ha)
1	Arrow Creek	13	K-25	8599.8
2	Goat Mountain	13	K-25	976.2
3	Skimmerhorn Range	13	K-25	3464.5
4	Thompson/ Russell Creek	13	K02/ K05	3973.2
5	Kitchener Mountain	13	K05/K06	1034.6
6	Birch Creek	13	K02	947.8
7	Carroll Creek	13	K02	1095.9
8	Found Creek	13	K05	1221.3
9	Kitchener	13	K02/ K05	94.4

1.2 Term of the Forest Stewardship Plan

The term of this Forest Stewardship Plan:

- i) will commence on the day the District Manager grants approval to this document
- ii) will be for 5 years as per Section 6(1)(a) of the *Forest and Range Practices Act*
- iii) may be terminated earlier than 5 years if the Forest Stewardship Plan holder chooses to replace it with another approved Forest Stewardship Plan
- iv) may be extended by the District Manager as per Section 6(2) of the *Forest and Range Practices Act*

2.0 Description of the Forest Stewardship Plan Area

This Forest Stewardship Plan has been prepared for the Creston Valley Forest Corporation's (CVFC) Licence K3D management area.

CVFC's management area measures 21,408 hectares in size and sustains an Allowable Annual Cut of 25,000 m³/ year. All of the CVFC's management area is situated on Crown land and is not shared by any other major forest licensee, woodlot licence or any other area based tenure. Licence K3D contains important recreational, scenic and wildlife features along with several Community and Domestic watersheds. The Community Forest's management area is proximal to the Town of Creston making it very accessible to the local public in terms of hiking, berry picking and hunting. These areas include: the Arrow Creek Community watershed which provides the Town of Creston with its drinking water and services the fruit orchardists in Erickson, BC; Goat Mountain which has the well known Lady Slipper hiking trail; the western side of the Skimmerhorn range which contains the Mount Thompson Rim trail; the Thompson/ Russell Creek drainages; Kitchener Mountain; Birch Creek; Carroll Creek and Kidd Creek.

Over the years, CVFC has used certain locations within its management area for educational field trips for elementary and high-school students. The community forest is continuously looking at fostering the importance of forest education for elementary and high-school students.

Given that CVFC's management area borders a portion of the Town of Creston and several private land owners, fuel mitigation in the Wildland Urban Interface is something that the Community Forest will focus on. FireSmart and the Strategic Wildfire Protection Initiative are two such programs that support communities to mitigate risk from wildfire.

3.0 Other Plans

The Forest Stewardship Plan area is subject to the *Kootenay Boundary Higher Level Plan Order* which came into effect on October 26, 2002 along with subsequent variances to this Order. The *Kootenay Boundary Higher Level Plan Order* objectives have been specifically developed for this region of the Kootenays and takes precedence over objectives set by government under the *Forest and Range Practices Act* and the *Forest Planning and Practices Regulation*, where they conflict.

This Forest Stewardship Plan is also designed to be consistent with CVFC's *Management Plan Amendment # 2* approved in September 2015. This document was prepared for CVFC's management area taking into account the Community Forest's management philosophy. In some situations, CVFC's Management Plan will take precedence over objectives set by government under the *Forest and Range Practices Act* and the *Forest Planning and Practices Regulation*. In other words, CVFC will go above and beyond the legislated requirements in order to preserve habitat and meet CVFC's mandate.

4.0 Objectives, Results and Strategies

Objectives are described as a specific result that a person or system aims to achieve within a time frame and with available resources.

Results are described as:

- a) measurable or verifiable outcomes for a particular established objective and
- b) situations or circumstances that determine where in a Forest Development Unit the outcomes under (a) will be applied.

Strategies are described as:

- a) measurable or verifiable steps or practices that will be carried out to meet a particular established objective and
- b) situations or circumstances that determine where in a Forest Development Unit the steps or practices will be applied.

Under Section 149 of the *Forest and Range Practices Act*, the Government of British Columbia identifies several forest resource objectives that are guided by the *Forest and Planning and Practices Regulation*, the *Forest and Range Practices Act*, the Government Action Regulation orders and the *Kootenay Boundary Higher Level Plan Order*. These forest resource objectives are defined in this Forest Stewardship Plan along with how these objectives will be achieved by results and/ or strategies.

The *Forest & Range Practices Act* and other associated legislation outlines how all forest and range practices and resource-based activities are to be conducted on Crown land in B.C., while ensuring protection of everything in and on them, such as plants, animals and ecosystems. All

forest and range licensees' activities are governed by the *Forest and Range Practices Act* and its regulations during all stages of planning, road building, logging, reforestation and/or grazing.

This Forest Stewardship Plan also contains Licencee developed strategies that are outlined in CVFC's 2015 *Management Plan Amendment # 2*. As was previously mentioned, the Community Forest's Management Plan was specifically prepared for Licence K3D, taking into account the company's management philosophy.

4.1 Soil Management and Conservation Objective

Legal Reference: *Forest and Range Practices Act* Section 149 and *Forest Planning and Practices Regulation* Section 5

Objective: *The objective set by government for soils is, without unduly reducing the supply of timber from British Columbia's forests is to conserve the productivity and the hydrologic function of soils.*

Applicable Area: All Forest Development Units in the Licence K3D area.

Strategy: CVFC will comply with the *Forest Planning and Practices Regulation* Sections 35 and 36 in order to meet the defined objective for soil management.

4.2 Water - Community Watersheds

Legal Reference: *Forest Planning and Practices Regulation* Section 8.2 (2)

Objective: *The objective set by government for water being diverted for human consumptive through a licensed waterworks in a community watershed is to prevent the cumulative hydrological effects of primary forest activities within the community watershed from resulting in*

- a) *adverse material impacts on the quantity of water or timing of the flow of the water from waterworks, or*
- b) *the water from the waterworks having a material adverse impact on human health that cannot be addressed by water treatment required under*
 - i) *an enactment, or*
 - ii) *the licence pertaining to the waterworks.*

Applicable Area:

These areas can be cross referenced to the Forest Stewardship Plan maps located in the Appendix of this plan.

Table 2. Community watersheds located in CVFC's management area.

Community Watershed	Forest Development Unit Number and Name
Arrow Creek	FDU # 1 - Arrow Creek
Sullivan Creek	FDU # 3 - Skimmerhorn
Camp Run Creek	FDU # 3 - Skimmerhorn
Floyd Creek	FDU # 3 - Skimmerhorn
Russell Creek	FDU # 4 - Thompson/Russell

Strategy: CVFC will comply with the *Forest Planning and Practices Regulation* Sections 59, 60, 61, 62, 63 and 84. Prior to carrying out a primary forest activity¹ in a Community watershed, CVFC will ensure that the following items are addressed:

- i) A hydrological assessment has been completed by a Qualified Registered Professional that will determine cumulative hydrological effects of a proposed development including, but not limited to; the quality, quantity and timing of flow, determining the equivalent clearcut area², road density and number of stream crossings, possible sediment sources, terrain stability and hazard/ risk levels.
- ii) A referral letter will be sent to stakeholders and water users who may be impacted by a proposed development. The referral period will be for a 30 day period (i.e. April 1-30) allowing for adequate response time.
- iii) Responding to written concerns from individual stakeholders and water users and/ or holding meetings to discuss a proposed forest activity.
- iv) Other issues as deemed necessary by the licensee or Qualified Registered Professional.

The licensee will ensure that all primary forest activities are consistent with the recommendations of the hydrological assessment.

4.2.1 Water - Consumptive Streams (Domestic watersheds)

Legal Reference: The *Forest Planning and Practices Regulation* Section 8 and the *Kootenay Boundary Land Use Plan* Objective Section 6.

Objective: CVFC will comply with Objective 6 of the *Kootenay Boundary Land Use Plan* and the *Forest Planning and Practices Regulation* Section 8.

Applicable Area:

The following watersheds and their respective Forest Development Units can be cross referenced to the Forest Stewardship Plan development maps located in the Appendix of this Plan.

Table 3. Domestic watersheds located in CVFC's management area.

Domestic Watershed	Forest Development Unit Number and Name
Big Bear Brook	Arrow Creek/ FDU # 1
Arrow West Face	Arrow Creek/ FDU # 1
Okell Creek	Arrow Creek/ FDU # 1
Bank Creek	Thompson/ Russell/ FDU # 4
Russell West Face	Thompson/ Russell/ FDU # 4
Russell East Face	Thompson/ Russell/ FDU # 4
Sullivan- Thompson Face	Skimmerhorn/ FDU # 3
Floyd Face	Skimmerhorn/ FDU # 3
Goat South Face	Skimmerhorn/ FDU # 3

¹ A primary forest activity includes the construction of forestry roads and where timber harvesting is planned to occur. A forest activity may also include the proposed construction of hiking trails and mountain bike trails.

² An equivalent clearcut area describes a second growth cutblock in terms of its hydrological equivalent as a clearcut. As second growth develops, the hydrological impact on a site is reduced. For example, a 20 hectare cutblock with 6 metre high trees heights is 50% recovered, so the equivalent clearcut area is actually calculated as being 10 hectares (20 hectares x 50%). A cutblock with 9 metre tree heights is considered 100% recovered.

Strategy: Prior to a proposed road building or logging project taking place in a Domestic use watershed, the agreement holder will:

- a) only implement a primary forest activity if the activity:
 - i) will not cause material that is harmful to human health to be deposited in or transported to water that is diverted for human consumption by a licensed waterworks.
 - ii) will not damage a licenced waterworks.
 - iii) is 100 metres radius upslope of a known intake (or licenced waterworks) unless the timber harvesting or road construction will not increase sediment delivery to the intake.
 - iv) will result in the disturbed site being re-vegetated within one year using a suitable seed mixture (Canada #1 seed as a minimum). In the following season the area will be checked to determine germination success. If inadequate (less than 25% of the seeded area growing), the area will be reseeded.
- b) Seek the current information for Point of Diversions from the Ministry of Environment, Water Stewardship Division Water Licensees Web Query database.
- c) Map the water licensees' Points of Diversion that may be affected by a primary forest activity.
- d) Contact any potentially affected water licensee to ensure accuracy of the Points of Diversion information and consult with the water licensee with regards to a planned primary activity.
- e) A referral letter will be sent to stakeholders and water users who may be impacted by the proposed development. The referral period will be for a 30 day period (i.e. April 1-30) allowing for adequate response time. CVFC will commit to working with and resolving any concerns and issues that may arise.

In addition, the licensee will utilize specific measures within a stream side management zone depending on the classification of a stream (refer to Section 4.4.4 of this plan for stream classifications).

- a) Retention of trees within the stream side management zone will address the strategy for Riparian Management Zones.
- b) Ground-base equipment is restricted from operating in the stream side management zone.
- c) Cable harvest yarding roads are restricted from stream side management zones unless approved in writing by a Qualified Registered Professional.
- d) Cable harvesting within a stream side management zone will yard trees butt first.
- e) Stream channels will be cleaned of harvesting debris immediately after harvesting is complete.

4.3 Fisheries Sensitive Streams and Watersheds

Legal Reference: *Forest Planning and Practices Regulation* Section 8.1

Practice Requirements: There are no fisheries sensitive watersheds in any of the Forest Development Units of Licence K3D.

4.4 General Biodiversity

Legal Reference: *Kootenay Boundary Land Use Plan* Objectives 1, 2, 4, 7 and 8 and *Forest Planning Practices Regulation* Sections 9, 9.1, 64 and 65

Objective: The overall objective for general biodiversity will be for the conservation, diversity and abundance of native species and their habitats throughout the area of Licence K3D. More specifically, this will include:

- Landscape Level Biodiversity
- Wildlife Tree Retention
- Old and Mature Forests
- Riparian management
- Wildlife and Species at Risk

4.4.1 Landscape Level Biodiversity

Legal Reference: *Forest Planning and Practices Regulation* Sections 64 and 65

Objective: *The objective set by government for wildlife and biodiversity at the landscape level is, without unduly reducing the supply of timber from British Columbia's forests and to the extent practicable, to design areas on which timber harvesting is to be carried out that resemble, both spatially and temporally, the patterns of natural disturbance that occur within the landscape.*

Applicable Area: All Forest Development Units of Licence K3D area

Strategy: CVFC will comply with the *Forest Planning and Practices Regulation* Sections 64 and 65.

Stand level practices should reflect the naturally occurring patterns of disturbance found on the landscape. For example, small irregular cutblocks can mimic small-scale wind-throw events and root rot centers. Large cutblocks with scattered riparian leave strips, or island remnants (such as veteran trees), can mimic larger stand initiating wildfires and insect epidemics. Stand level practices will reflect the landscape level disturbance history as well as current levels of management disturbance.

4.4.2 Wildlife Tree Retention Area – (Stand Level)

Legal Reference: *Forest Planning and Practices Regulation* Sections 9.1 and 66

Objective: *The objective set by government for wildlife and biodiversity at the stand level is, without unduly reducing the supply of timber from British Columbia's forests, to retain wildlife trees.*

Applicable Area: All Forest Development Units of Licence K3D area.

Strategy: CVFC will comply with the *Forest Planning and Practices Regulation* Sections 66 and 67.

Regarding what constitutes a wildlife tree retention area, CVFC will select areas containing wildlife trees such as veteran Douglas-fir and Larch that are windfirm, areas showing active wildlife use such as elk/ moose wallows and trees used for nesting.

A large part of CVFC's management area lies in the ICH_{xw} and ICH_{dw} Biogeoclimatic zones³ which contain deciduous species such as Poplar and Birch.

Whenever possible, areas of a block containing these species will also be established for wildlife retention areas.

CVFC will comply with Section 66 of the *Forest Planning and Practices Regulation* with regards to reserving a minimum of 3.5% of the area of a block as a wildlife tree retention area. For example, if the gross area of a block measures 30 hectares, at least 1.05 hectares will be established as a wildlife tree retention area.

Individual wildlife trees will also contribute towards the total percent amount of wildlife tree retention provided these trees are full cycle trees (i.e. to be removed at the next rotation in 60-100 years time). Areas of a block containing individual trees and small wildlife tree retention areas measuring less than 0.25 hectares in size will contribute on the basis of the total basal area of the trees divided by the average basal area/ hectare of the pre-harvest stand.

4.4.3 Old and Mature Forests

Legal Reference: *Kootenay Boundary Higher Level Plan Order* Objectives 1 and 2

Objective: The objective will be to maintain old and mature forests referenced in the Kootenay Boundary Higher Level Plan.

Applicable Area: All Forest Development Units of Licence K3D area.

Strategy: CVFC will comply with Objectives 1 and 2 of the *Kootenay Boundary Higher Level Plan Order*. Specifically, this will involve retaining old forest values⁴ and attributes by using the provincial Old Growth Management Area GIS layers as amended from time to time.

The requirement for old forest targets is currently fulfilled and managed with non-legal spatialized Old Growth Management Areas that meet the requirements of the Kootenay Boundary Higher Level Plan objective 2.

Following the approval by a Qualified Registered Professional, CVFC may harvest within Old Growth Management Areas for the following reasons:

- a) To provide for guy-line clearance and tail-hold anchors during cable harvest operations.
- b) To address danger trees that are located within an Old Growth Management Area which are a hazard to primary forest activities.

³ In BC, the Biogeoclimatic Ecosystem Classification (BEC) system is used for identifying and categorizing ecosystems throughout the province. It combines climate, vegetation and site characteristics (soils, elevation, slope position and geology) in order to classify the ecosystem of a particular area. The nomenclature that is used in the BEC system for identifying a specific zone is done by listing one or more tree species as a two to four letter code. The ICH denotes *Interior Cedar Hemlock* (Interior is used as a geographic modifier), while the 'xw' code represents the climate and temperature of that zone which is 'very warm and dry'.

⁴old forest values and attributes include: large old trees, a multilayered canopy, numerous large snags and logs, a diverse tree community, some trees having a great age, canopy gaps, a hummocky micro-topography, complex structure, wider tree spacing and increased understory production.

- c) To prevent the spread of insect infestation or disease that, in the opinion of a Qualified Registered Professional, pose a threat of an epidemic forest health issue to forested areas external to an Old Growth Management Area. The level of infestation or disease and the risk to external forested areas will be assessed and documented by a Qualified Registered Professional.
- d) To address fuel management concerns and related safety hazards.
- e) To provide road access when no alternative practicable option for a road location exists.
- f) Where landscape level old growth objectives can be better met, a Qualified Registered Professional can identify one or more replacement Old growth Management Areas that provide equal or greater biological value.

Where timber is harvested from an Old Growth Management Area for any of the circumstances described in items a thru f listed above, a Qualified Registered Professional will document the decision within a Site Plan or supporting document. Additionally, where the harvested area is mappable (greater than 0.25 hectares), a Qualified Registered Professional will prepare a written rationale in advance of a cutting permit or road permit submission indicating reasons for harvesting timber from the Old Growth Management Area and spatially identifying one or more replacement Old Growth Management Areas of at least the same size that provide equal or greater biological value consistent with the requirements of Objective 2 (5) of the Kootenay Boundary Higher Level Plan Order, including the factors identified in footnote k.

To ensure consistency, the replacement rationale will consider the impact of the development on the biological effectiveness of the Old Growth Management Area relating to the current amount of the interior condition, the amount of human impact, the dispersion/ connectivity of the Old Growth Management Area in the Landscape Unit, the rarity of the stand or site series, stand age, successional status, presence of old growth attributes and size. Old growth values in both the proposed Old Growth Management Area harvest area and the proposed replacement area will be field verified. To support the rationale, a stand and landscape level assessment will be completed using the Draft 2018 *Technical and Scientific Guidance for Implementing Current Old Forest Retention Legislation and Policy in the Kootenay Boundary Higher Level Plan Order* and the old growth score cards provided in Appendix E. Note that this procedure may be updated from time to time to reflect the best information available. The guidance paper and score cards in Appendix E reflects the current version on the date of submission.

Changes to the boundaries or locations of Old Growth Management Areas will be spatially updated and upon request, digital information will be provided to the Ministry and to forest licensees if the change is within a shared landscape unit. Those licensees (Canfor Wynnwood and BCTS) with whom CVFC shares a landscape unit will be apprised of a proposed development during the development stage.

4.4.4 Riparian Management

Legal Reference: *Forest Planning and Practices Regulation* Section 8 and Sections 47 thru to 58

Objective: The objective set by government for water, fish, wildlife and biodiversity within riparian areas is, without unduly reducing the supply of timber from British Columbia's forests,

to conserve, at the landscape level, the water quality, fish habitat, wildlife habitat and biodiversity associated with those riparian areas.

Applicable Area:

All Forest Development Units within Licence K3D operating area.

Stream Classifications and Definitions:

S1A stream - is a stream or active flood plain measuring 100 metres in width (or greater) and is over one kilometre in length.

S1B stream - is a stream having a width greater than 20 metres but does not have a riparian class of an S1A

S2 stream - is a stream that is more than 5 metres in width but not more than 20 metres in width

S3 stream - is a stream that is not less than 1.5 metres in width but is less than 5 metres in width

S4 stream – is a stream that is less than 1.5 metres in width

A stream that is not a fish stream and is located outside of a Community watershed has the following riparian class:

S5 stream - is a stream with a width greater than 3 metres

S6 stream - is a stream with a width that is 3 metres or less

Strategy: If the Community Forest carries out or authorizes primary forest activities within the management zone of a stream or wetland complex then:

- a) the activities will conform with Sections 47 to 51, 52(2) and 53 of the *Forest and Range Practices Regulation*.
- b) the following retention strategies will be implemented as shown in Tables 4 and 5.

Table 4. Riparian Retention Strategies for streams.

Riparian Class	Riparian Management Area Width (m)	Riparian Reserve Zone (m)	Riparian Management Zone (m)	Minimum Percent Retention of Basal Area
S1 – A	100	0	100	100%
S1 – B	70	50	20	60%
S2	50	30	20	60%
S3	40	20	20	60%
S4	30	0	30	60%
S5	30	0	30	60%
S6	20	0	20	60%

The Community Forest commits to maintaining 60% of the basal area within the riparian management zone of streams and lakes. Basal area retention will be evenly distributed throughout the width and length of the Riparian Management Zone. The Community Forest will commit to falling and yarding away from a stream channel to protect integrity of the riparian feature.

Riparian Reserve Zone: means an area where trees must not be cut, modified or removed unless for the purposes specified under Section 51(1) of the Forest Planning and Practices Regulation.

Wetland Classifications and Definitions

A wetland is a swamp, marsh, or other similar area that supports natural vegetation that is distinct from the adjacent upland areas.

There are five different types of wetland areas that are identified in British Columbia and are assigned a classification of W1 thru W5. The classification is based on the size of the feature and the biogeoclimatic ecosystem classification that the wetland is situated in.

Table 5. Riparian Retention Strategies for wetlands.

Riparian Class	Riparian Management Area Width (m)	Riparian Reserve Zone (m)	Riparian Management Zone (m)	Minimum Percent Retention in the Riparian Management Zone
W1	50	10	40	60%
W2	30	10	20	60%
W3	30	0	30	60%
W4	30	0	30	60%
W5	50	10	40	60%

- c) When carrying out harvest activities in areas where a stream or wetland complex is located, the Community Forest will establish a 5 metre machine free zone next to all Riparian Reserve Zones for the purpose of retaining existing shrubs and herbs and non-merchantable/ merchantable trees except where the licensee is:
- i) Establishing a stream crossing.
 - ii) Carrying out hand falling.
 - iii) Carrying out cable or aerial yarding across or adjacent to a stream.
 - iv) Removing trees to address a safety concern.
 - v) Carrying out vegetation management treatments to meet free growing requirements.

4.4.5 Wildlife Habitat Areas

Wildlife Habitat Area 4-205 (approved in June 2018) is located within a portion of CVFC's management area for the benefit of the Western Screech Owl (*Megascops kennicotti macfarlanei*); a red-listed species in British Columbia.

Legal Reference: *Forest Planning and Practices Regulation* Section 7 and Sections 9(1), 9(2) and 10(1) of the *Government Actions Regulation*

Objective: *The objective set by government for wildlife is, without unduly reducing the supply of timber from British Columbia's forests, to conserve sufficient habitat in terms of amount of area, distribution of areas and attributes of those areas for*

- a) *the survival of the species at risk*
- b) *the survival of regionally important wildlife, and*
- c) *the winter survival of specified ungulate species*

Applicable Area: The area identified for 4-205 for Western Screech-Owl habitat is located in Forest Development Unit #3

Strategy: CVFC will comply with the *Forest Planning and Practices Regulation* Section 7 and the area for proposed Wildlife Habitat Area Unit # 4-205 which has been identified by the province.

Strategies identified by the province will include:

- a) Ensuring operations will have low impact on known nesting and breeding sites of the Western Screech-Owl.
- b) When possible, enhancing the riparian habitat of the Western Screech-Owl.

General wildlife measures for the Western Screech Owl can be found on the following website: http://www.env.gov.bc.ca/wld/documents/wha/WESO_4-205_4-209_Order.pdf

Background Info: Wildlife Habitat Area #4-205 is located within Forest Development Unit # 3 of the Skimmerhorn mountain range in Canyon, BC. This area has been identified for the benefit of the Western Screech-Owl, more specifically the subspecies, Interior Western Screech-Owl. This species of owl occupies a fairly small portion of southern BC starting from Lillooet and extending east to the Flathead Valley.

The area identified as Screech Owl habitat is characterized by mixed forests of predominantly western red-cedar, western hemlock and black cottonwood. There are several creeks which transect the area, one of these being Camp Run Creek, which provide the owl with its desired riparian environment. The Wildlife Habitat Area abuts multiple private land parcels, many of which have fields and open grassland, providing good hunting grounds for the owl. The terrain is fairly gentle in the west section of the Wildlife Habitat Area and begins to climb to the east.

4.5 Species at Risk

Legal Reference: CVFC will comply with the *Forest Planning and Practices Regulation* Section 7(1).

Additional Species at Risk information regarding accounts and measures can be found on the Ministry of Environment's website: <http://www.env.gov.bc.ca/wld/frpa/iwms/accounts.html>

Objective: *The objective set by government for wildlife is, without unduly reducing the supply of timber from British Columbia's forests, to conserve sufficient wildlife habitat in terms of amounts of area, distribution of areas and attributes of those areas, for the survival of species at risk, the survival of regionally important wildlife, and the winter survival of specified ungulate species.*

Applicable Area: All Forest Development Unit's of CVFC's Licence K3D area.

Strategy: During the field development planning phase, CVFC staff will:

- Be observant for signs of a species at risk during the field stage of a development.
- Consult the Government of Canada Species at Risk Public Registry: http://www.registrelep-sararegistry.gc.ca/sar/index/default_e.cfm for information on the species of interest.
- Consult the Conservation Data Centre: <https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/conservation-data-centre> for information on the species of interest.

- Consult the BC Species and Ecosystem Explorer application <http://a100.gov.bc.ca/pub/eswp/> for information on best management practices for the species of interest.
- Contact a Qualified Registered Professional to assess the area in question and provide recommendations if sufficient guidance cannot be found using the above resources.
- Follow the recommendations provided by the Qualified Registered Professional.
- Include the recommendations and best management strategies for the identified Species at Risk into operational plans.
- Annual training will be provided for all field staff and contractors. Training will include identification of species at risk, habitat suitability, habitat attributes, best management practices and reporting procedures. Training will also include instruction on the use of the BC Species and Ecosystem Explorer application to aid in determining current status and distribution.

Additional Strategies:

When operating in areas that may contain species at risk, contractors and field staff will:

- Be provided with a document containing habitat information and photos pertaining to the species.
- Where possible, retain existing, natural habitats for the species at risk.
- Strive to enhance, retain or restore key habitat features for the species at risk.
- Consult with a Qualified Registered Professional if attempting to enhance or restore habitat.
- Ensure that primary forest activities are consistent with the requirements outlined in the Wildlife Habitat Area Orders and Wildlife Habitat Feature Orders.

If a species at risk is observed in an area not previously identified as supporting that species:

- Contractors and field staff are to cease activities and notify CVFC immediately.
- CVFC will report the species at risk to the Conservation Data Centre as soon as possible (i.e. within a 1-2 month period).

Background Information: Most of the species at risk that may fall within CVFC’s Forest Developments Units are likely because of a large buffer. For many of the species, their distribution is on the Creston Valley flats and around the Kootenay River. The exception to this is the Pygmy Slug/ *Kootenaia burkei* (found in the Skimmerhorn FDU), the Northern Pocket Gopher/ *Segregatus subspecies* (found in the Goat Mtn. FDU) and possibly the Montana Lupine/ *Lupinus arbustus ssp. pseudoparviflorus* (buffer extends into the Goat Mtn, Arrow Creek, Thompson/Russell and Skimmerhorn FDU). The following table provides information on the species at risk or their respective buffers which are located within CVFC’s operating area.

Table 6. Red listed species at risk identified within CVFC’s management area.

Species	Status	Distribution
Red Listed		
Common downingia/ <i>Downingia elegans</i>	Presumed extirpated; last observed in the Creston Valley: October 25, 1950	This species was possibly extirpated in BC subsequent to the last observation in September 1950 following the diking of Leach lake. Suitable habitat in the southeast part of the province should be searched to ascertain whether the species still

		occurs in the province. It is unknown how well this species has even been searched for in the Leach Lake area where it was first observed. It is possible that it survived lake level modifications and a thorough inventory of the Creston Valley wetlands should be done. (<i>BC Conservation Data Centre</i>)
Northern Pocket Gopher/ <i>Segregatus subspecies</i>	Imperiled; last observed in the Creston Valley: October 12, 1996	Known only from the type locality, Wynndel, just north of Creston, British Columbia. Isolated from other subspecies by the Kootenay River and by mountainous terrain. Location documented at the northern base of Arrow Mtn. (<i>BC Conservation Data Centre</i>)
Alkali-marsh Butterweed/ <i>Senecio hydrophilus</i>	Historical/Possibly Extirpated Last observed in the Creston Valley: August 19, 1891	Wet, often alkaline swamps and meadows in the montane zone; rare in extreme southeast BC. Location documented Kootenay River. (<i>E-Flora BC</i>)
Montana Lupine/ <i>Lupinus arbustus ssp. pseudoparviflorus</i>	Critically Imperiled Last observed in the Creston Valley: <i>No info</i>	May be uncommon in portions of range, but found from Nevada north into Canada in dry meadows/sagebrush-steppe/moist forest habitats (<i>NatureServe Explorer</i>)

Table 7. Blue listed species at risk identified within CVFC's management area.

Species	Status	Distribution
Blue Listed		
Red-tailed Chipmunk/ <i>Simulans subspecies</i>	Special Concern, Vulnerable to Extirpation or Extinction Last observed in the Creston Valley: August 15, 1951	Wynndel, West Creston, Nick's Island (<i>BC Conservation Data Centre</i>)
Tall beggar-ticks/ <i>Bidens vulgata</i>	Imperiled Last observed in the Creston Valley: August 10, 1952	Rare in southern BC east of the Coast-Cascade Mountains Location documented in Wynndel. (<i>E-Flora BC</i>)
Pygmy Slug/ <i>Kootenaia burkei</i>	Imperiled Last observed in the Creston Valley: September 24, 2014	It has recently been confirmed in British Columbia near Kootenay Pass and in the Ktunaxa Traditional Territory in southeastern British

		Columbia. Location documented east of Thompson Mtn. FSR (BC Conservation Data Centre)
--	--	--

The current Species at Risk Notices for the Selkirk Forest District include the Rocky Mountain Tailed-frog/ *Ascaphus montanus* and the Coeur d'Alene Salamander/ *Plethodon idahoensis*.

It has been determined that the amount, distributions and attributes of wildlife habitat for the Rocky Mountain Tailed-frog have been met, but that of the Coeur d'Alene Salamander remain incomplete. Currently there are no Wildlife Habitat Areas for the Coeur d'Alene Salamander within CVFC's operating area. CVFC will continue to review the Species at Risk Notices for any changes by referring to: <http://www.env.gov.bc.ca/wld/frpa/notices/sar.html#kl>.

4.5.1 Wildlife

4.5.1.1 Mountain Caribou/ *Rangifer tarandus caribou*

Legal Reference: *Higher Level Plan Order* Resource Management Zone Objective 3 and *Government Actions Regulation Order* #4-012.

Objective: To ensure year round habitat for Mountain Caribou in order to foster their continued existence by maintaining forest cover requirements in those areas set aside for Mountain Caribou.

Applicable Area: Arrow Creek Forest Development Unit

Strategy: CVFC will comply with the *Government Actions Regulation Order* regarding Mountain Caribou.

4.5.1.2 Grizzly Bear Habitat

Legal Reference: *Government Actions Regulation* Section 9(1) and *Kootenay Boundary Higher Level Plan Order* Objective 5

Objective: *To maintain mature and/ or old forests adjacent to important grizzly bear habitat and within connectivity corridors.*

Strategy: CVFC will comply with Objective 5 of the *Kootenay Boundary Higher Level Plan Order*.

There are currently no grizzly bear habitat areas identified within CVFC's management area although CVFC's Forest Development Units still overlap connectivity corridors accessing these habitat areas. Under Objective 5(3) of the Kootenay Boundary Higher Level Plan Order, CVFC will maintain mature and/or old forests within connectivity corridors for the purpose of forest ecosystem connectivity.

4.6 Cultural Heritage Resources

Legal Reference: *Forest Planning and Practices Regulation* Section 10.

Objective: *The objective set by government for cultural heritage resources is to conserve, or, if necessary, protect cultural heritage resources that are the focus of a traditional use by an aboriginal people that is of continuing importance to that people, and not regulated under the Heritage Conservation Act.*

Strategy: CVFC will provide an information package regarding its proposed developments to affected First Nations using the Consultative Areas Database. The information sharing package will include a written 60-day notification and map showing the location of proposed roads and areas of harvest. CVFC will document all responses received from First Nations and will commit to working with, and resolving any concerns and issues that may arise. Pertinent information provided to CVFC by First Nations will also be included into its operational/ site plans.

If a cultural heritage resource is identified by a First Nations group, CVFC will refer to the Forest and Planning and Practices Regulation - Schedule 1 items in working with the First Nations group who have identified the cultural heritage resource.

If a proposed development is located within a moderate or high risk polygon (or a known archeological site), CVFC will have an archeologist carry out an Archeological Impact Assessment. Any recommendations that the archeologist provides in his/her written report will in turn be implemented into CVFC's operational/ site plans.

If a previously unknown cultural heritage resource is observed while carrying out a primary forest activity CVFC will immediately cease operations and:

- Record detailed information regarding the resource, resource location, time of finding and any other information deemed relevant.
- Consult with a Qualified Registered Professional so that he/she may assess the site to determine the potential impact to those findings.
- Communicate with affected First Nations regarding the details of the cultural heritage resource to determine what the next course of action may be (i.e does the activity cease or will the activity be modified in order to mitigate future impacts?).
- Modify the planned activity to mitigate the impact on the cultural heritage resource if the assessment determines it is necessary to do so.
- Keep a record of all steps taken with regard to the cultural heritage resource.

Once the above steps have been satisfied, depending on the arrived decision, operations may then resume.

4.7 Visuals

Legal Reference: *Government Actions Regulation* Section 7 and Sections 1.1 and 9.2 of the *Forest Planning and Practices Regulation*.

Result: *CVFC will meet the visual quality objectives after harvesting and road construction has occurred.*

Strategy: Prior to applying for a cutting permit, a Qualified Registered Professional will conduct a visual quality assessment for the proposed developments of roads and blocks within all areas identified as having a *Visual Quality Objective. The assessment will be carried out using the British Columbia Visual Impact Assessment Guidebook and will be consistent with the March 2014 changes to the Selkirk Forest District visual quality objectives.

Under Section 12(7) of the *Forest Planning and Practices Regulation*, visual quality objectives may be exceeded to salvage damaged timber or to address forest health issues caused by insect infestations, if approved in writing by the District Manager.

Background Information:

The five *Visual Quality Objectives that have been identified by government include the following:

- 1) **Preservation** – No visible activities or very small in scale. Cutblock is not easily distinguished from the pre-harvest landscape.
- 2) **Retention** – Activities are not visually evident and are difficult to see. Cutblock appears natural in appearance.
- 3) **Partial Retention** – Activities are visible but remain subordinate. Cutblock is easy to see appearing small to medium in scale on the landscape.
- 4) **Modification** – Activities are visually dominant but can still possess characteristics that appear natural. Cutblock is very easy to see having a large scale or can be small to medium in scale with some angular characteristics.
- 5) **Maximum Modification** – Activities are dominant and out of scale. Cutblock is very easy to see and very large in scale.

4.8 Outdoor Recreation

Legal Reference: *Forest and Range Practices Act* Section 180 and 181

Objective: *To provide or coordinate trail based recreational opportunities within the boundaries of the Creston Community Forest, and where appropriate, in adjacent areas.*

Applicable Area:

Existing recreational areas can be cross referenced to the Forest Stewardship Plan maps located in Appendix A.

Table 7. Recreation sites and trails located in CVFC’s management area.

Recreation Sites and Trail	Forest Development Unit Number and Name
Lady Slipper Trail	FDU # 2 – Goat Mountain
Mt. Thompson Lookout/ Rim Trail	FDU # 3 - Skimmerhorn
Thompson Rotary Trail	FDU # 3 - Skimmerhorn
Thompson Pack Trail	FDU # 3 - Skimmerhorn

Result: Road construction and timber harvesting will be consistent with any objective established for interpretive forest sites, recreation sites and recreation trails.

Strategy:

- a) Manage existing recreation sites and hiking trails which are the legal responsibility of the CVFC. All recreation sites and hiking trails are legally established and are managed to the standards of the province's Recreation Sites and Trails BC. The recreation sites and trails currently include:
 - Lady Slipper Trail
 - Mt. Thompson Lookout Rec Site and Mt Thompson Rim Trail
 - Thompson Rotary Trail
 - Thompson Pack Trail
- b) Look at opportunities in CVFC's management area to plan, coordinate, enhance, upgrade recreation sites or build trails for hiking, skiing, mountain biking, snow shoeing and other non-motorized, human powered activities.
- c) Work with the local recreational officer to help identify user groups and implement best management practices for rec sites trails such as:
 - i) installing proper signage at trail heads and notifying the public when active logging is taking place.
 - ii) identifying low use periods and coordinating logging and hauling during that time.
 - iii) removing safety hazards that may exist along forestry access roads.
 - iv) rehabilitating a site and mitigating damage to the existing vegetation.
- d) Work with other municipalities including the Town of Creston, the Regional District of Central Kootenay, adjacent communities, First Nations and industrial companies and contractors and with local community groups and non-profit societies including the Trails for Creston Valley Society and Rotary Clubs to identify and promote new trail developments in the CVFC and adjacent areas.
- e) Where appropriate, seek full or partial funding (both cash and in-kind) from all possible sources including all levels of government, industrial companies, contractors, non-profit societies, community groups and the general public for managing existing rec sites and trails and building new rec sites and trails
- f) To recommend to the CVFC Board the annual level of funding for the management and maintenance of existing re c sites trails and for new rec site and trail construction. Funding to be approved by the Board of Directors and included in the annual budget of the CVFC.
- g) Where timber harvesting or road construction may affect an interpretive forest site, recreation site, or a recreation trail, timber harvesting and road construction will only proceed under the authorization of a recreation officer.

4.8.1 Forest Education

Legal Reference: *Forest and Range Practices Act* Section 180 and 181

Objective: *CVCF will educate the public about the Community Forest and the management of Creston's forest resources.*

Strategy:

- a) Continue to provide school field trips during National Forestry Week.
- b) Where appropriate, submit articles to the local media and magazines,
- c) When applicable, provide updates to our webpage: www.crestoncommunityforest.com
- d) Look at opportunities to provide and organize field trips for the local public.

4.9 Timber – Enhanced Resource Development Zones

Legal Reference: *Kootenay Boundary Higher Level Plan* Objective 7

Objective: CVFC will support intensive forest management within those areas identified as Enhanced Resource Development Zones.

Applicable Area: The Enhanced Resource Development Zones are identified on the Forest Development Maps which are located in the Appendix of this report.

Strategy: CVFC will comply with Objective 7 of the *Kootenay Boundary Higher Level Plan*

4.10 Natural Range Barriers

There are no range barriers situated with any of CVFC's Forest Development Units. Therefore, no strategies or measures are required to mitigate the effect of removing range barriers. If a range tenure is awarded in a Forest Development Unit covered in this Forest Stewardship Plan, this Forest Stewardship Plan will be amended to develop appropriate results, strategies and measures.

5.0 Fire Maintained Ecosystems

Legal Reference: *Kootenay Boundary Higher Level Plan* Objective 8

Objective: CVFC will identify and restore areas within CVFC's management area that display ecological and historical characteristics of a fire maintained ecosystem. Specifically, these areas will be defined by the ICHxw Biogeoclimatic Zone and Natural Disturbance Type 4⁵.

Strategy: CVFC's 2015 Management Plan Amendment # 2 identifies wildfire interface zones within its operating areas and zones that fall into Natural Disturbance Type 4. CVFC's 2015 Management Plan will be used as a guide to determine which areas within the Community Forest are to be treated. In addition, CVFC has prepared the Town of Creston 2017 Community Wildfire Protection Plan which identifies areas located within some portions of the Community Forest area along with land that is owned by the Town of Creston. Funding for the Town of Creston's Protection Plan will be funded by the Union of BC Municipalities.

Additional Information:

Map 8.1 from the Kootenay Boundary Higher Level Plan Order is currently unavailable and Objective 8 is therefore not in effect.

A large portion of CVFC's management area is adjacent to homes and private land which is part of the Wildland Urban Interface.

⁵ These disturbance types characterize areas with different natural disturbance regimes. The disturbance agents are mostly wildfires, windstorms and to a lesser extent, insects and landslides. NDT4 is described as an ecosystem with frequent stand maintaining events that historically occur every 4 to 50 years.

The Wildland Urban Interface is defined as ‘*an area where combustible wildland fuels are found adjacent to homes, farm structures, other outbuildings or infrastructure*’. CVFC has already conducted some fuel mitigation treatments and will continue to do so based on areas identified in the 2015 Management Plan Amendment #2.

5.1 Wildland Urban Interface Stocking Standards

CVFC’s management area directly overlaps with areas containing the ICHxw Biogeoclimatic Zone and Natural Disturbance Type 4.

The ICHxw zone is described as ‘*closed stands of Douglas-fir and yellow pine with sporadic regeneration of cedar, hemlock and lodgepole pine*’. This zone also corresponds to Natural Disturbance Type 4 which is described as having a disturbance regime occurring every 4-50 years.

The Wildland Urban Interface is also an area of habitat fragmentation allowing for the introduction of invasive species and biodiversity loss. It has also been described as a ‘zone of tension’ between forest and open range/ grassland.

In March 2010, CVFC developed Wildland Urban Interface stocking standards and regimes that:

- a) applies to the ICHxw biogeoclimatic subzone
- c) addresses the wildland urban interface
- d) corresponds to CVFC’s silviculture harvesting systems.

The interface stocking standards consist of four basal area ranges and are to be applied to areas that meet the criteria of restoring the ecology of the ICHxw and Natural Disturbance Type 4. None of the four basal area ranges have reforestation obligations because the management goal is to promote a more open forest with lower stocking levels and hence, re-establishing these areas to their historical ecology. These are to be managed as Wildland Urban Interface areas and may see future entries to remove additional volumes. The Wildland Urban Interface stocking standards were approved by the Selkirk Forest District in collaboration with Kristine Saceniaks, RPF and Katherine Upward, RPF. The interface standards are located in the Appendix of this document.

6.0 Invasive Plants

Legal Reference: *Forest and Range Practices Section 47* and the *Forest Planning and Practices Regulation Section 17*

Objective: *For the purpose of section 47 [invasive plants] of the Act, a person who prepares a forest stewardship plan must specify measures in the plan to prevent the introduction or spread of species of plants that are invasive plants under the Invasive Plants Regulation, if the introduction or spread is likely to be the result of the person's forest practices.*

Applicable Area: This applies to all Forest Developments Units of Licence K3D

Strategy: In accordance with the *Forest and Range Practices Act* and the *Forest Planning and Practices Regulation*, CVFC will implement the following to reduce the introduction and spread of invasive plants:

Training

Mandatory annual invasive plant training will be provided for all field staff and contractors, which will include:

- Reviewing the *Best Practices for Preventing the Spread of Invasive Plants during Forest Management Activities* guidebook:
<https://www.for.gov.bc.ca/hra/plants/publications/Forestry-BP-09-11-2013-WEB.pdf>
- Invasive plant identification.
- Awareness of locations and species type of infestations currently documented in the Invasive Alien Plant Program (IAPP) iMap database <http://maps.gov.bc.ca/ess/hm/iapp/>.
- Reviewing and familiarizing with CVFC's reporting guidelines.
- All training will be documented and kept on file at the CVFC office.

Reporting

- Document and report invasive species that are observed outside of areas of known infestation. These include those on the Early Detection Rapid Response (EDRR) watch lists, eradication list for Creston and species found outside of the Creston containment areas.
- Reporting for EDRR species will be done within one week of observation using the Report-A-Weed application <http://www.reportaweedbc.ca/> or by emailing the Invasive Plant Specialist from the Ministry of Forests, Lands, Natural Resource Operations and Rural Development for the Kootenay Boundary Region <https://www.for.gov.bc.ca/hra/Plants/ContactUs.htm>
- Reporting for eradication species will be done within one week of observation using the Report-A-Weed Application. Eradication species are those that are known to be in an area, but with limited distribution. To date, only one* of the listed species for the Creston area has been documented on a forestry road in CVFC's management area. The following is a list of the eradication species for the Creston Valley which may be amended from time to time:
 - Baby's breath
 - Black locust
 - Common bugloss
 - Leafy spurge
 - Meadow/brown/black knapweed
 - Plumeless thistle
 - Policeman's helmet*
 - Purple loosestrife
 - Rush skeletonweed
 - Scotch thistle
 - Teasel
- Reporting for containment species will be done within two weeks of observation using the Report-A-Weed Application. (see the most current priority list for the Creston area <http://ckiss.ca/species/terrestrial-riparian/>).

Practice

- While in the planning phase, review the IAPP iMap database to determine what kind of infestations are present in the area of interest. Refer to Central Kootenay Invasive Species Society's (CKISS) most current priority list for the Creston area to determine how the identified species should be managed.
- Include management strategies in Site and Harvest Plans.
- Work in non-infested areas first and infested areas last.
- If possible, work in infested areas in the winter season.
- Equipment that has been used for primary forest activities in an area of known infestation is not to be moved to a non-infested area until it has been deemed by CVFC's logging/road building supervisor to have been properly cleaned. The supervisor will document and keep on file the approval to move equipment.
- Minimize soil disturbance (ie. By harvesting on snowpack or frozen ground)
- Seed exposed soils along roads and landings, as well as deactivated roads with appropriate plant species (Canada #1 seed as a minimum) within one year of disturbance. In the following season the area will be checked to determine germination success. If inadequate (less than 25% of the seeded area growing), the area will be reseeded.
- If species have been reported outside of known areas of infestation, CVFC will be in contact with CKISS to obtain any additional information on best practices for treatment and monitoring.

7.0 Stocking Standards

Legal Reference: *Forest and Range Practices Act Section 29 and Forest Planning and Practices Regulation Sections 16, 44 and 197*

Objective: *A holder of a major licence or community forest agreement who harvests timber to which a forest stewardship plan applies must establish in accordance with the plan, the prescribed requirements and the standards, a free growing stand on those portions of the area of harvest that are in the net area to be reforested.*

Applicable Area: All Forest Development Units of the Licence K3D area.

Strategy: Where required under the *Forest and Range Practices Act* to establish a free growing stand, CVFC will do so in accordance with the Selkirk District default stocking standards, as amended from time to time. These standards are located in Appendix B of this document.

7.1 Free Growing Dates

CVFC may choose to declare a cutblock Free Growing sooner than the early assessment date listed in the Selkirk District stocking standards if the cutblock meets all of the requirements of a Free Growing stand.

8.0 Cumulative Effect of Multiple Forest Stewardship Plans

Legal Reference: *Forest Planning and Practices Regulation Section 19*

Objective: For the purpose of Section 9 of the *Forest Planning and Practices Regulation*, CVFC will consult with licensees who hold a Forest Stewardship Plan within a watershed and/ or Forest Development Unit that is also occupied by the CVFC.

Applicable Area: All Forest Development Units of the Licence K3D area.

Strategy: Prior to the submission of a cutting permit and to address landscape level conflicts within Forest Development Units and Community and Domestic watersheds. CVFC will contact licencees who also hold a Forest Stewardship Plan within these areas in order to address and resolve landscape unit level issues prior to the submission of a road or cutting permit.

In order to meet the landscape level requirements of a particular watershed or Forest Development Unit, CVFC will compare (with other licencees) Equivalent Clearcut Assessment calculations for watersheds, calculations for old and mature timber within a Landscape Unit and the calculations to show snow interception coverage and forage area requirements.

If the holders of a Forest Stewardship Plan who occupy the same area (watershed or landscape unit) are unable to reach an agreement for managing the objectives assigned to that area under Section 9 of the *Forest Planning and Practices Regulation*, a request will then be made to the District Manager to act under Section 9 of the *Forest and Range Practices Act*.

9.0 Public Review and Comment

Legal Reference: *Forest Planning and Practices Regulation* Section 20 and 21

Applicable Area: All Forest Development Units of the Licence K3D area.

This Forest Stewardship Plan was made available to the general public and potentially affected stakeholders for their review and comment for a period of 60 days from March 20 – May 20, 2017. Notices were placed in the local newspaper (Creston Valley Advance) and letters were emailed out to potentially affected First Nations (refer to Appendix D). The advertisement located in Appendix D is from the April 6, 2017 issue of the Creston Valley Advance. No comments or concerns were received.

For all forest development activities, CVFC will engage with any potentially affected stakeholders such as First Nations, water licencees, trap-line holders, guide outfitters, utility owners, local governments and commercial recreation tenure holders. Letters containing information regarding the project and inviting comment will be sent out and will allow for a 30 day comment period.

To ensure that the public and potentially affected stakeholder are kept informed of forest development activities, CVFC will annually upload proposed operational plans for the year to its webpage: www.crestoncommunityforest.com. Updating will be completed by February 1 of each year. Comments and concerns will be accepted on an ongoing basis via email or mail, and will be kept on record at the CVFC office. CVFC will respond to comments via written response within a 30 day period.

-This page was intentionally left blank-

Appendix A. Wildland Urban Interface Stocking Standards

Region: RSI – Southern Interior Forest Region
 District: DSE – Selkirk Resource District
 BEC Zone: ICHxw

Creston Valley Forest Corporation Licence K3D

ID	Name	BEC/ Subzone	Layer	Species		Regen Obligation	Additional Comments
				Preferred Species	Acceptable Species		
	Intermediate Cut 15.0-19.9 m²/ ha Wildland Urban Interface/ Natural Disturbance Type 4	ICHxw 101,102,103, 104, 110, 111	1	Fdi, Py, Lw	Cw, Se Hw, Bg, PI, Pw	No	This standard is required to reduce fuel hazards in the WUI over the long term by ensuring ladder fuels and crown densities can be managed to mitigate crown fire densities. The preferred species (Fdi, Lw, Py) are characteristic of fire maintained eco-systems (Natural Disturbance Type 4). Acceptable species can constitute up to 20% of the total basal area averaged throughout the block. Aesthetically, a preferred/ acceptable residual crop tree should appear in good form and health and will include the following criteria: DBH greater than or equal to 17.5 cm; no wounds greater than 400 cm ² ; no dead or broken tops; no crooks and or major sweeps; should be free of obvious signs of mistletoe, conks or other visible signs of disease. Block will be periodically assessed every 5-7 years to ensure stand characteristics of the WUI are being maintained and to determine the need for additional treatments (i.e. hand-piling of debris, removal of ladder fuels by pruning).
	Intermediate Cut 20.0-24.9 m²/ ha Wildland Urban Interface/ Natural Disturbance Type 4	ICHxw 101,102,103, 104, 110, 111	1	Fdi, Py, Lw	Cw, Se, Hw, Bg, PI, Pw	No	This standard is required to reduce fuel hazards in the WUI over the long term by ensuring ladder fuels and crown densities can be managed to mitigate crown fire densities. The preferred species (Fdi, Lw, Py) are characteristic of fire maintained eco-systems (Natural Disturbance Type 4). Acceptable species can constitute up to 20% of the total basal area averaged throughout the block. Aesthetically, a preferred/ acceptable residual crop tree should appear in good form and health and will include the following criteria: DBH greater than or equal to 17.5 cm; no wounds greater than 400 cm ² ; no dead or broken tops; no crooks and or major sweeps; should be free of obvious signs of mistletoe, conks or other visible signs of disease. Block will be periodically assessed every 5-7 years to ensure stand characteristics of the WUI are being maintained and to determine the need for additional treatments (i.e. hand-piling of debris, removal of ladder fuels by pruning).
	Intermediate Cut 25.0-29.9 m²/ ha Wildland Urban Interface/ Natural Disturbance Type 4	ICHxw 101,102,103, 104, 110, 111	1	Fdi, Py, Lw	Cw, Se, Hw, Bg, PI, Pw	No	This standard is required to reduce fuel hazards in the WUI over the long term by ensuring ladder fuels and crown densities can be managed to mitigate crown fire densities. The preferred species (Fdi, Lw, Py) are characteristic of fire maintained eco-systems (Natural Disturbance Type 4). Acceptable species can constitute up to 20% of the total basal area averaged throughout the block. Aesthetically, a preferred/ acceptable residual crop tree should appear in good form and health and will include the following criteria: DBH greater than or equal to 17.5 cm; no wounds greater than 400 cm ² ; no dead or broken tops; no crooks and or major sweeps; should be free of obvious signs of mistletoe, conks or other visible signs of disease. Block will be periodically assessed every 5-7 years to ensure stand characteristics of the WUI are being maintained and to determine the need for additional treatments (i.e. hand-piling of debris, removal of ladder fuels by pruning).
	Intermediate Cut 30.0-34.9 m²/ ha Wildland Urban Interface/ Natural Disturbance Type 4	ICHxw 101,102,103, 104, 110, 111	1	Fdi, Py, Lw	Cw, Se, Hw, Bg, PI, Pw	No	This standard is required to reduce fuel hazards in the WUI over the long term by ensuring ladder fuels and crown densities can be managed to mitigate crown fire densities. The preferred species (Fdi, Lw, Py) are characteristic of fire maintained eco-systems (Natural Disturbance Type 4). Acceptable species can constitute up to 20% of the total basal area averaged throughout the block. Aesthetically, a preferred/ acceptable residual crop tree should appear in good form and health and will include the following criteria: DBH greater than or equal to 17.5 cm; no wounds greater than 400 cm ² ; no dead or broken tops; no crooks and or major sweeps; should be free of obvious signs of mistletoe, conks or other visible signs of disease. Block will be periodically assessed every 5-7 years to ensure stand characteristics of the WUI are being maintained and to determine the need for additional treatments (i.e. hand-piling of debris, removal of ladder fuels by pruning).

Appendix D. Public Review and Comment



**CRESTON
COMMUNITY FOREST**
Creston Valley Forest Corporation

Box 551
Creston, BC, V0B 1G0
Phone: 250-402-0070
Email: dgratton@crestoncommunityforest.com

March 20, 2017

Mr. Adrian Bergles, Lands Manager
Akisqnuq First Nation
PO Box 130
Windermere, BC V0B 2L0

**Re: Creston Valley Forest Corporation 2017-2022 Forest Stewardship Plan -
Licence K3D**

Dear Mr. Bergles:

The Creston Valley Forest Corporation (CVFC) has completed its 2017-2022 Forest Stewardship Plan (FSP) located within the Selkirk Forest District.

In accordance with section 20(2)(c) of the *Forest Planning and Practices Regulation*, the FSP is available for review and comment until May 20, 2017.

If you wish to review the FSP, please contact CVFC at (250) 402-0070 to make an appointment or go to www.crestoncommunityforest.com to view the document online.

Yours truly,

A handwritten signature in black ink, appearing to read 'D. Gratton', is written over a light blue rectangular background.

Daniel Gratton, RPF
Forest Manager



**CRESTON
COMMUNITY FOREST**
Creston Valley Forest Corporation

Box 551
Creston, BC, V0B 1G0
Phone: 250-402-0070
Email dgratton@crestoncommunityforest.com

March 20, 2017

Mr. Ray Warden - Director, Lands and Resources
Ktunaxa Lands and Resources Agency
Ktunaxa Nation Council
7468 Mission Road
Cranbrook, BC V1C 7E5

**Re: Creston Valley Forest Corporation 2017-2022 Forest Stewardship Plan -
Licence K3D**

Dear Mr. Warden:

The Creston Valley Forest Corporation (CVFC) has completed its 2017-2022 Forest Stewardship Plan (FSP) located within the Selkirk Forest District.

In accordance with section 20(2)(c) of the *Forest Planning and Practices Regulation*, the FSP is available for review and comment until May 20, 2017.

If you wish to review the FSP, please contact CVFC at (250) 402-0070 to make an appointment or go to www.crestoncommunityforest.com to view the document online.

Yours truly,

A handwritten signature in black ink, appearing to read 'Daniel Gratton', is written over a light blue rectangular background.

Daniel Gratton, RPF
Forest Manager



**CRESTON
COMMUNITY FOREST**
Creston Valley Forest Corporation

Box 551
Creston, BC, V0B 1G0
Phone: 250-402-0070
Email dgratton@crestoncommunityforest.com

March 20, 2017

Mr. Curtis Wullum – Director of Development Services
Lower Kootenay Development Corporation
830 Simon Road
Creston, BC V0B 1G2

**Re: Creston Valley Forest Corporation 2017-2022 Forest Stewardship Plan -
Licence K3D**

Dear Mr. Wullum:

The Creston Valley Forest Corporation (CVFC) has completed its 2017-2022 Forest Stewardship Plan (FSP) located within the Selkirk Forest District.

In accordance with section 20(2)(c) of the *Forest Planning and Practices Regulation*, the FSP is available for review and comment until May 20, 2017.

Please be aware that the Lower Kootenay Band's trapline is also situated within the Licence K3D area.

If you wish to review the FSP, please contact CVFC at (250) 402-0070 to make an appointment or go to www.crestoncommunityforest.com to view the document online.

Yours truly,

A handwritten signature in black ink, appearing to read 'D. Gratton', is written over a light blue rectangular background.

Daniel Gratton, RPF
Forest Manager



**CRESTON
COMMUNITY FOREST**
Creston Valley Forest Corporation

Box 551
Creston, BC, V0B 1G0
Phone: 250-402-0070
Email dgratton@crestoncommunityforest.com

March 20, 2017

Single Window Administrative Portal
Secwepemc RFA
200-345 Chief Alex Thomas Way
Kamloops, BC V2H 1H1

**Re: Creston Valley Forest Corporation 2017-2022 Forest Stewardship Plan -
Licence K3D**

Dear Sir/Madam:

The Creston Valley Forest Corporation (CVFC) has completed its 2017-2022 Forest Stewardship Plan (FSP) located within the Selkirk Forest District.

In accordance with section 20(2)(c) of the *Forest Planning and Practices Regulation*, the FSP is available for review and comment until May 20, 2017.

If you wish to review the FSP, please contact CVFC at (250) 402-0070 to make an appointment or go to www.crestoncommunityforest.com to view the document online.

Yours truly,

A handwritten signature in black ink, appearing to read 'Daniel Gratton', is written over a light blue rectangular background.

Daniel Gratton, RPF
Forest Manager



**CRESTON
COMMUNITY FOREST**
Creston Valley Forest Corporation

Box 551
Creston, BC, V0B 1G0
Phone: 250-402-0070
Email dgratton@crestoncommunityforest.com

March 20, 2017

Ms. Sierra Stump, Referrals Coordinator
Shuswap Indian Band
RR2 3A-492 Arrow Rd
Invermere, BC V0A 1K2

**Re: Creston Valley Forest Corporation 2017-2022 Forest Stewardship Plan -
Licence K3D**

Dear Ms. Stump:

The Creston Valley Forest Corporation (CVFC) has completed its 2017-2022 Forest Stewardship Plan (FSP) located within the Selkirk Forest District.

In accordance with section 20(2)(c) of the *Forest Planning and Practices Regulation*, the FSP is available for review and comment until May 20, 2017.

If you wish to review the FSP, please contact CVFC at (250) 402-0070 to make an appointment or go to www.crestoncommunityforest.com to view the document online.

Yours truly,

A handwritten signature in black ink, appearing to read 'Daniel Gratton', is written over a light blue rectangular background.

Daniel Gratton, RPF
Forest Manager



**CRESTON
COMMUNITY FOREST**
Creston Valley Forest Corporation

Box 551
Creston, BC, V0B 1G0
Phone: 250-402-0070
Email dgratton@crestoncommunityforest.com

March 20, 2017

Ms. Julie Couse, Lands Director
St. Mary's Indian Band Chief and Council
7470 Mission Road
Cranbrook, BC V1C 7E5

**Re: Creston Valley Forest Corporation 2017-2022 Forest Stewardship Plan -
Licence K3D**

Dear Ms. Couse:

The Creston Valley Forest Corporation (CVFC) has completed its 2017-2022 Forest Stewardship Plan (FSP) located within the Selkirk Forest District.

In accordance with section 20(2)(c) of the *Forest Planning and Practices Regulation*, the FSP is available for review and comment until May 20, 2017.

If you wish to review the FSP, please contact CVFC at (250) 402-0070 to make an appointment or go to www.crestoncommunityforest.com to view the document online.

Yours truly,

A handwritten signature in black ink, appearing to read 'Daniel Gratton', is written over a light blue rectangular background.

Daniel Gratton, RPF
Forest Manager



**CRESTON
COMMUNITY FOREST**
Creston Valley Forest Corporation

Box 551
Creston, BC, V0B 1G0
Phone: 250-402-0070
Email dgratton@crestoncommunityforest.com

March 20, 2017

Mr. Tom Philips
Chief and Council
Tobacco Plains Indian Band
PO Box 76
Grasmere, BC V0B 1R0

**Re: Creston Valley Forest Corporation 2017-2022 Forest Stewardship Plan -
Licence K3D**

Dear Mr. Philips:

The Creston Valley Forest Corporation (CVFC) has completed its 2017-2022 Forest Stewardship Plan (FSP) located within the Selkirk Forest District.

In accordance with section 20(2)(c) of the *Forest Planning and Practices Regulation*, the FSP is available for review and comment until May 20, 2017.

If you wish to review the FSP, please contact CVFC at (250) 402-0070 to make an appointment or go to www.crestoncommunityforest.com to view the document online.

Yours truly,

A handwritten signature in black ink, appearing to read 'Daniel Gratton', is written over a light blue rectangular background.

Daniel Gratton, RPF
Forest Manager

Wildsight

Wildsight's Go Wild! is offering two youth leadership adventures this summer, taking 14 to 18 year olds on site-day wilderness backpacking trips into our wild backyards in the Rockies and Purcell Mountains.

Here in the Kootenays, we're lucky to live amongst an endless playground of mountains, rivers, lakes and trees. Go Wild! aims to connect young adults in our communities to our majestic surroundings, develop their leadership skills and inspire a love of the outdoors that will last a lifetime.

For 2017, Wildsight is offering Go Wild! adventures with a focus on travel deep in our wild spaces and places and our rich natural history. Dave Quinn, award-winning author, photographer, outdoor educator, wildlife biologist and ACMG certified hiking guide, will be the leader for these adventures of a lifetime.

For many, climbing a mountain for the first time, cooking on a campfire or carrying their own gear on their own backs can be a life-changing moment. "Self-sufficiency in true wilderness turns on all the switches in the human brain: creativity, community, connection, confidence, and inspiration," said Quinn. "This is what we hope to celebrate with Go Wild!, that two-way street where wilderness helps define us and lift us up, and in turn we become advocates and supporters of all things wild, not just for their sake, but for our own as well."

Go Wild! Rockies - July 8 to 13, 2017: Participants will travel back in time to follow in the 1905 footsteps of pioneer conservationist William Hornaday on a traverse of some of the wildest remaining wilderness in the Southern Rockies. This wildlife-rich area straddles the Bull and Elk Rivers north of Denro, and offers an un-


forgettable glimpse into the rich past and potential future of the Wild Rockies. Guided by Dave Quinn and Kelly Comishir, professional youth counsellor and experienced wilderness guide who has lead trips in the Canadian Arctic, Patagonia, on BC's West Coast and in the Kootenays.

Go Wild! Purcells - August 21 to 26, 2017: Hikers will follow the regional historic Earl Gray Pass Trail between Invermere and Kootenay Lake. This traverse of the Purcell Wilderness Conservancy includes dramatic views of glaciers, ancient forests, and five cable cars across Hornell Creek. Guided by Dave Quinn and Leah Evans, certified ACMG guide, professional skier, and mountaineer, Chris DeSola.

The cost for each trip is \$800, including leadership services and meals, with a limited number of bursaries available for low-income families. More information is available at wildsight.ca/gowild.



Book & SAVE O
GRE
inclu
Plus
thea. s
CRESTON VETERINARY HOSPITAL
1605



**Creston Valley Forest Corporation
Community Forest Agreement K3D
Forest Stewardship Plan (2017-2022)**

The Creston Valley Forest Corporation (CVFC) has completed its 2017-2022 Forest Stewardship Plan (FSP).

An FSP is a forest planning document detailing how an area will be managed for a variety of resources, including the harvesting of trees. An FSP also describes how a company will ensure that logging operations are consistent with the objectives established by government.

This FSP has been prepared in accordance with British Columbia's *Forest Planning and Practices Regulation*.

Any person(s) wanting to review and comment can contact Denise Gratton, RPF at 250-402-3070 or go to www.crestoncommunityforest.com. Comments can be sent to: Box 551 Creston, BC V0B1G0 or dgratton@crestoncommunityforest.com.

The FSP will be available for public review and comment until May 20, 2017.

TOP EMPLOYERS
just a click away

NOW HIRING!



START
Local
YOUR BEST S

Appendix E. Draft 2018 Technical and Scientific Guidance for Implementing Current Old Forest Retention Legislation and Policy in the Kootenay Boundary Higher Level Plan Order and Index of Old Growthness Scorecards – Kootenay Boundary Region

Technical and Scientific Guidance for Implementing Current Old Forest Retention Legislation and Policy in the Kootenay Boundary Higher Level Plan Order - DRAFT

November 30, 2018

Legal and Policy Framework

The Kootenay Boundary Higher Level Plan Order (2002) and associated variances are enacted under the Lands Act and provide legally binding targets for biodiversity conservation. These targets are implemented through results and strategies implemented within Forest Stewardship Plans, as specified in the Forest and Range Practices Act.

The HLPO states that the “definitions, processes and procedures in the Landscape Unit Planning Guide at the time this order takes effect or as amended from time to time apply, unless otherwise noted” (1999). The LUPG states that Old Growth Management Areas are not intended to meet *all* biodiversity values, just those biodiversity values related to old forests, and that OGMA should be delineated to maximize their value to biodiversity conservation. The Forest Practices Board (e.g., 2008, 2012) has supported these principles.

Policy from the Integrated Land Management Bureau (2006) defines situations where a spatially recognized OGMA can be harvested. This includes limited rationales for timber harvesting efficiency, as well as guidance on harvesting following natural disturbance. Where an OGMA is harvested, policy clearly states that an area of equal or better old growth value must be identified and mapped as a replacement.

Steps and Process for Selecting a Potential OGMA Replacement Area

Considerable research and knowledge exists for defining and identifying old seral forests. Under legislation and policy, old forests are defined on the base of stand age (age of the dominant cohort). Ages for old seral stands are defined in the HLPO (based on information from the Biodiversity Guidebook, 1995). Forests that meet or exceed the age-based definition are considered old forest in the HLPO. Some younger forests may contain structural attributes that are more commonly associated with old forests. Inclusion of younger forests with sufficient structural attributes is incorporated into the HLPO through subscript k: “Where a registered professional forester determines that a forest stand has sufficient biological value to be a mature or old considering the stand age, successional status, presence of old growth attributes, size of stand (ha), the amount of human impact, dispersion/connectivity of the stand and rarity of the stand; that stand may be used in meeting the targets as opposed to solely using age.” Table 1 provides additional detail on the attributes listed in subscript k.

Forest professionals who are considering an OGMA replacement need to document stand and landscape level attributes of existing and potential forested stands. All OGMA replacements must lead to retention of equal or better old forest values. The following information provides guidance on how to determine “equal or better” to make decisions on OGMA selection or replacement.

Technical Steps for Determining and Rationalizing Replacement of an OGMA to ensure Equal or Better Old Forest Values

Evaluate the stand and landscape level old forest attributes in existing and proposed replacement stands considering the following.

Stand level attributes:

- Stand age
- Stand structure (density of large live trees, snags, CWD – where “large” is defined by ecosystem)
- Lack of human disturbance

Landscape level attributes:

- Patch size

- Amount/proportion of patch that provides interior habitat (note that the smallest patch with “interior habitat” is a round polygon with an area of 3.14 ha)
- Connectivity
- Rarity and Ecosystem Representation (site series or unusual structure)

Document the values using stand measurements and maps.

Compare the existing to the proposed replacement.

Prioritization of evaluating these attributes is summarized in Figure 1, which provides a summary of the ranking priority for selecting and replacing OGMA. This figure follows existing policy to:

- (1) conserve the highest value biodiversity available on the landscape;
- (2) where old forest values are equivalent, select OGMA in the Non-Contributing landbase first, then in the Timber Harvesting Landbase;
- (3) where insufficient old forests are available in the landbase to meet old seral targets, select Recruitment OGMA (ROGMA) that will achieve old seral targets in the shortest timeframe possible.

Recruitment OGMA are ranked in order of ability to achieve the targets in the shortest timeframe possible, where first priority is given to selecting mature forests with live remnant large structure and mature forests that are nearing the age of old (e.g., 220 year old stand where old is 250 years old) (Type 3a and 3b in Figure 1). Young forests with dead remnant large structure may contribute to OGMA targets (Type 5a), but only where there are no better patches on the landscape.

Table 1. Additional information on the attributes listed in subscript k of the Kootenay Boundary Higher Level Plan Order

Subscript k	Definition	Sources for additional data
Stand age	Age-based definitions are listed in the HLPO and are based on the age of the dominant cohort in a stand, based on tree measurements	HLPO, Biodiversity Guidebook (1995)
Successional status	Describes the stand development status of a forest, including factors such as tree species composition,	LMH 25 (2010) describes both Successional status and Structural stages
Presence of old growth attributes	Old forest attributes are relative to the ecosystem (BEC variant and site series or group of site series). Typical old forest attributes include: many large live trees, snags, CWD; multiple canopy layers (from regen to dominants); canopy gaps; unique or well-developed plant communities.	The size of “large” and density of expected large attributes is described in a series of research projects that were completed in the Kootenay Boundary Region (1999-2006). These use an “index of old growthness approach” approach and are listed in Appendix 1, with “old growth score cards” for use in the field
Size of stand	Larger stands are preferred because they provide more habitat, more interior habitat conditions, and less edge habitat. The minimum legal size of an OGMA is 2 ha, but larger patches are encouraged and the intention is to maintain or increase patch size	The Biodiversity Guidebook provides information on historic patch size
Amount of human impact	Human impacts such as historic (or recent) selective harvesting, roads, trails, linear corridors, etc reduce the value of old forest stands	
Dispersion/connectivity of the stand	Landscape level connectivity allows for the flow of species, genes, and populations. Old forest retention planning should avoid fragmentation and creation of isolated patches.	The Biodiversity Guidebook provides information on landscape connectivity

Rarity of the stand	The range of ecosystems in a geographic area should be included in a network of OGMA's. Rare stands, either for the rarity of the site series or structural stage (e.g., very old forests) are often prioritized in OGMA selection	The Conservation Data Centre's Ecosystem Explorer provides lists of Ecosystems at Risk; these are currently being reviewed and updated with incorporation of new BEC
---------------------	--	--

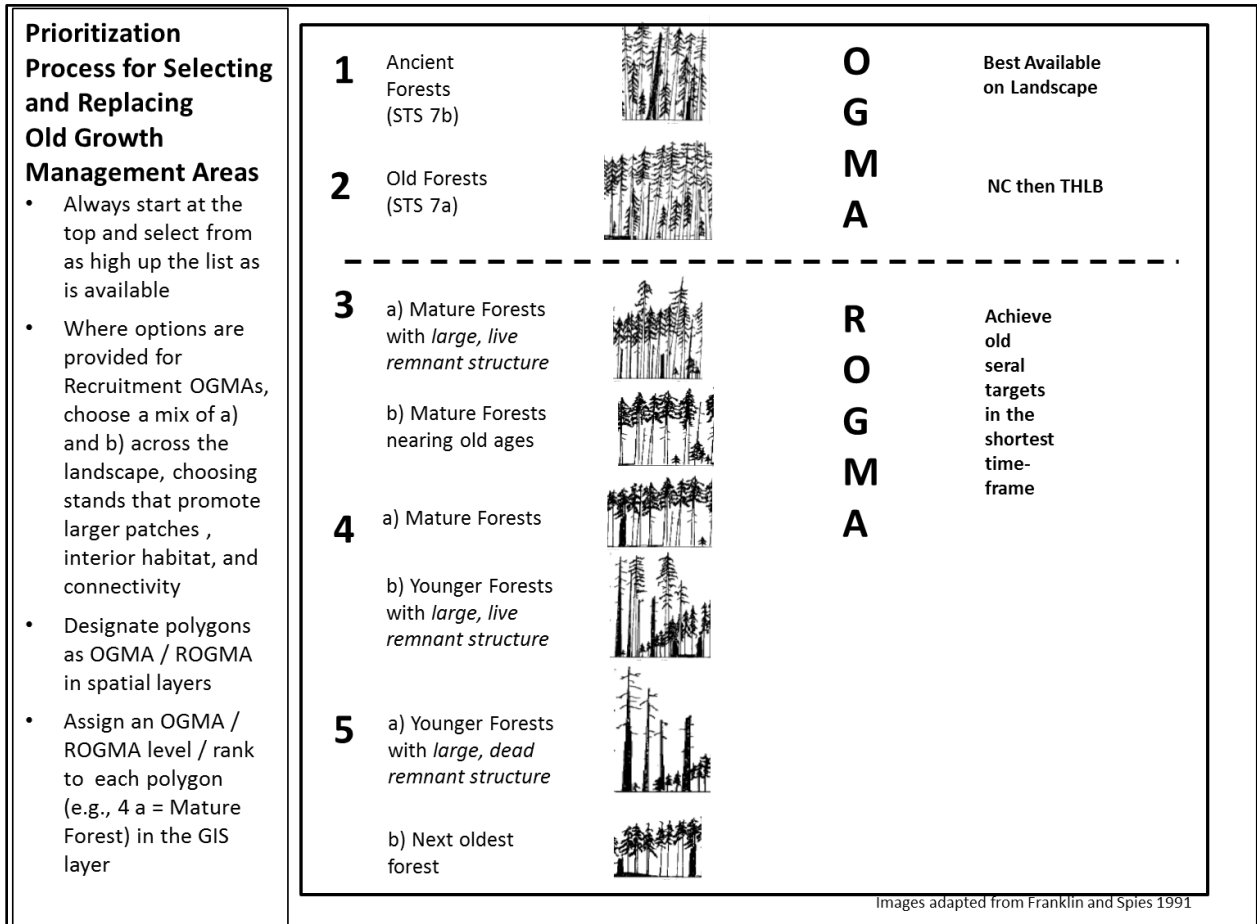


Figure 1. Process for prioritizing and rationalizing the selection of forest stands for old seral forest retention using existing, current policy. OGMA = Old Growth Management Area; ROGMA = Recruitment Old Growth Management Area. STS 7b = Structural Stage 7b (Very Old Forest); STS 7a = (Old Forest), as defined and described in Land Management Handbook 25 (2010).

Index of Old Growthness scorecards for use in the field – Kootenay Boundary Region

A series of research projects between 1999-2006 resulted in development of field-based score cards for identifying, ranking, and comparing old forest values at the stand level. These scorecards are intended to measure values at a stand level, and must be used in conjunction with an assessment of landscape level attributes such as increased patch size, interior habitat, and connectivity.

The scorecards presented here show minimum thresholds for a number of variables. Some of the scorecards provide thresholds for old forest and recruitment sites, while others provide thresholds for very old forest (e.g., “ancient” forest) as well as old forest in order to identify the “best” old forest. The scorecards are intended to be used with field data; data are meant to be collected to capture the variation within the stand. Field methods are described in the full reports (cited with each scorecard).

The advantage of using a scorecard approach is that a number of variables can be assessed and stands can be compared across several attribute.

When comparing stands, professionals must also consider, compare, and document landscape level parameters.

An Index of Old Growthness for the ICHdw1

Stand _____	Variant: <u>ICHdw</u>	Size _____				
Slope _____	Site series _____	FC age _____				
Attribute	Measured Value	Score			Thresholds	
		Not-old	Recruitment	Old	Recruitment	Old
Mean age					110	173
Mean Maximum age					177	281
Density trees >50cm dbh					34	64
Largest dbh on plot					58	71
Density trees 12.5 -40cm					222	145
# CWD >30cm, on 34m ¹					10	15
% trees >50 w deadtops ²					20	49
% trees >50 w pathogens ³					40	70
Lichen abundance ⁴					Low	Medium
Density of snags >50cm					7	11
Density snags 12.5 – 25cm					79	35
		sum (*1)	sum (*2)	sum (*3)		
		+	+	=	Total Score	
Comments and Landscape Considerations:						

- 1: # pieces of CWD with dbh > 30cm, on 34m transect through plot
- 2: % of large trees (>50cm dbh) with dead or broken tops
- 3: % of large trees (>50cm dbh) with evidence of pathogens
- 4: based on Armleder et al. 1992.

Figure 13. An example scorecard for a stand in the ICHdw.

* Note that this table could be applied to the ICHxw.

¹ Holt, R.F., T.F. Braumandl, D.J. MacKillop. 1999. An index of old-growthness for two BEC variants in the Nelson Forest Region. Prepared for the Inter-Agency Management Committee, Min. Env., Lands and Parks.

**An index of old-growthness for moist warm Interior Cedar Hemlock forests in southwest BC
ICHmw2, ICHmw4, ICHmw5¹**

Old Growth Scorecard for Moist Warm Interior Cedar Hemlock (ICHmw) Forests			
Stand Name _____ Map Sheet _____ Polygon _____ Label _____ Size _____ (ha)			
BEC variant _____ Site Series _____ Slope _____ Aspect _____ Elevation _____			
Structural Attribute	Measurement	Threshold	Score*
TREES			
Maximum tree age		> 342 years	
Mean tree diameter		> 37 cm dbh	
Largest diameter Tree		> 81 cm dbh	
Tree BA/Ha		>56 m ²	
Total trees		< 710 sph	
Trees 12.5-17.5cm dbh		< 106 sph	
Trees 17.5-30cm dbh		< 181 sph	
Trees 30-50cm dbh		< 151 sph	
Trees 50-70cm dbh		> 49 sph	
Trees >70cm dbh		> 19 sph	
Trees >50cm dbh with pathogens		> 53 sph	
Trees >50cm dbh with DT/BT/FT		> 25 sph	
SNAGS			
Total Snags		< 166 sph	
Snags <20cm dbh		< 100 sph	
Snags 20-30cm dbh		< 29 sph	
Snags 30-50cm dbh		< 19 sph	
Snags >70cm dbh		> 3 sph	
CWD			
CWD Volume		> 309 m ³	
CWD Density		< 923 sph	
Volume CWD 7.5-15cm diameter		< 6.2 m ³	
Volume CWD 15-30cm diameter		< 48 m ³	
Volume CWD 30-60cm diameter		> 145 m ³	
Volume CWD 60cm diameter		> 95 m ³	
Volume CWD DC4+5		> 213 m ³	
VEGETATION			
%Cover Layer C (Herbs)		> 14.5 %	
%Cover Layer D (Moss)		> 27.4 %	
Comments:			TOTAL

* Score = 1 if field measure meets or exceeds threshold; Score = 0 if field measure fails to meet threshold.

¹ MacKillop, D.J. 2003. Stand structural characteristics and development patterns in old-growth Interior Cedar Hemlock forests in Southeastern British Columbia. MSc Thesis, Faculty of Forestry, University of British Columbia, Vancouver, BC.

A scorecard for assessing old growth values in a stand in the ESSFwm¹

ESSFwk _____	Site series: _____	Aspect: _____		
Stand _____	Size: _____	FC Age: _____		
_____	_____	Slope: _____		
	Measured value	“Old”	“Intermediate”	“Not-old”
Measured stand age		>221	157-221	<157
CWD pieces/ha		>172	172 – 115	<115
Snags >50 / ha		>6	6-3	<3
Snags 20 – 30 / ha		<42	42-69	>69
Snags 12.5 – 20 / ha		<21	21-57	>57
Snags <12.5 / ha		<17	17-40	>40
Trees >50 / ha		>25	25-16	<16
Large tree dbh		>65	65-55	<55
Trees 20 – 30 /ha		<140	140-207	>207
Trees 12.5 – 20 /ha		<137	137-183	>183
Trees >12.5<30/ ha		<277	277-391	>391
Trees <12.5 > 1m /ha		>782	782-615	<615
Sum:				
		Sum x 3	Sum x 2	Sum x 1
TOTAL SCORE				
<u>Landscape Considerations:</u>				
<i>Additional information*:</i>				
<i>Percent plots with trees >50</i>		100%	73%	58%
<i>Percent 25m plots with snags >50</i>		43%	32%	16%
<i>Minimum CWD pieces/ ha</i>		65	15	0
<i>Maximum CWD pieces/ ha</i>		733	243	195

*information given to provide guidance only.

¹ Holt. 2000. An index of old-growthness for the ESSFwm BEC unit in the Nelson Forest Region. Prepared for the Inter-Agency Management Committee, Min. Env., Lands and Parks.

Index of Old-growthness for wet sites in the ICHwk1 and ICHvk1¹

Wet Stands (ICHwk1 05/06; ICHvk1 01/05)*				
Site Series _____ Slope _____ Aspect _____ Elevation _____ Size (ha) _____				
Stand Name _____ Polygon _____ Map Sheet _____ FC Age _____				
Structural Attribute**	Measured Value	Threshold for High Structure	Threshold for Very High Structure	Score = 0 for Low; 1 for High; 2 for Very High
Mean Stand Age		>243	>408	
Trees _{17.5-30} (sph)		<109	<40	
Trees ₃₀₋₅₀ (sph)		<123	N/A	
Trees ₅₀₋₇₅ (sph)		<72	<47	
Trees _{>100} (sph)		>13	>35	
Number of Trees>75cm with Dead or Broken Tops (sph)		>9	>31	
Largest Tree (cm)		>111	>150	
Largest Snag (cm)		>81	>103	
Snags_17.5-30 (sph)		<36	<6	
Snags_30-50 (sph)		<21	<9	
Snags_75-100 (sph)		>6	N/A	
Snags_100 (sph)		N/A	>5	
Average Canopy Lichen Loading**		>1.9	N/A	
%cover layer A: trees >10m tall		<30	<19	
Landscape Considerations/ notes				Sum:

* Additional data were added from field data collected using the same methods in Holt and Mackillop (2006)²

** Note that additional variables were added to the index to account for trees >200 cm dbh and >300 cm dbh.

¹ Holt, R.F. and D.J. MacKillop. 2002. Defining old-growth forests in the ICHwk1 BEC subzone in the Nelson Forest Region. Report prepared for the Revelstoke Community Forest Corporation, Downie Street Sawmills, and Pope and Talbot.

² Holt, R.F. and D.J. MacKillop. 2006. Endangered Forests of the Inland Temperate Rainforest: An inventory of old-growth in Trout Lake and the Incommapleux. Prepared for the Columbia Basin Fish and Compensation Program and Forest Ethics.

Thresholds for old-growthness on Mesic sites in the ICHwk1¹

Structural Attribute	Low Structural Value		Threshold for Moderate Structure	Moderate Structural Value		Threshold for High Structure	High Structural Value			
	Mean	SE		Mean	SE		Mean	SE		
Mean Stand Age	124	14	>	198	275	18	>	322	368	16
Trees 17.5-30 (sph)	202	18	<	187	163	27	<	139	123	19
Trees 30-50 (sph)	217	28	<	189	172	19	<	126	89	11
Trees 75-100 (sph)	1	1	>	4	9	2	>	19	31	3
Trees >100 (sph)	0	0	>	0	1	0	>	3	7	2
Number of Trees >75cm with Dead or Broken Tops (sph)	0	0	>	0	2	1	>	10	19	3
Number of Trees >75cm dbh with Pathogen Indicators (sph)	0	0	>	2	4	1	>	10	16	2
Largest Tree (cm)	69	3	>	77	85	3	>	96	108	4
Largest Snag (cm)	64	6	>	N/A	67	3	>	78	88	3
Snags 17.5-30 (sph)	65	16	<	31	10	4	<		10	4
Snags 30-50 (sph)	60	8	<	35	15	4	<	12	8	4
Snags 75-100 (sph)	2	1	>	3	4	1	>	6	8	1
Average Canopy Lichen Loading**	1.6	0.2	>	1.9	2.2	0.2	>	2.7	3.3	0.2
%cover Layer B2: shrubs and trees <2m	9	2	>	12	18	3	>	N/A	18	2
Largest CWD piece (diameter in cm)	48	2	>		48	2	>	55	64	3
Number of CWD pieces per hectare	483	41	<	443	387	58	<	323	293	23
Volume of CWD pieces >50cm diameter (per hectare)	41	17	>	N/A	40	12	>	120	225	37

** Based on visual assessments of hair lichens in the canopy (0 = no lichen; 5 = very high lichen) - modified from Armleder et al. (1992).

¹ Holt, R.F. and D.J. MacKillop. 2002. Defining old-growth forests in the ICHwk1 BEC subzone in the Nelson Forest Region. Report prepared for the Revelstoke Community Forest Corporation, Downie Street Sawmills, and Pope and Talbot.

Defining old-growth forests in the ESSFdk BEC subzone in the Nelson Forest Region¹

1 Field-based Scorecard for Wet Stands in the ESSFdk (01,05,06 site series)

WET ESSFdk Stand _____ Size (ha): _____		Site series: _____ FC Age: _____		Aspect: _____ Slope: _____	
	Measured Value	'High Structural Value' Threshold	"High Structure" Attribute	"Low Structure" Attribute	
Largest Tree		65 cm dbh			
Largest Snag		49 cm dbh			
Largest piece of CWD		34 cm			
Trees 17.5-50cm dbh		460 sph (Maximum)			
Trees >50cm dbh		24 sph			
Trees >50cm dbh with pathogen indicators		9 sph			
Snags >50cm dbh		4 sph			
CWD Volume (cubic m)		99 m ³			
SPH of pieces CWD		239 sph			
SPH CWD Logs >40cm		16 sph			
Volume CWD Logs >40cm		20 m ³			
CWD- #Decay Classes		2.42 classes			
MeanAge		171 years			
Std_Age		55 years			
MaxAge		236 years			
Landscape considerations:			Sum x 2	Sum	

** Note: Use CWD Volume measure OR SPH measure but not both.

Figure 1. An example Scorecard for the Wet ESSFdk. Values are on a per hectare basis (where applicable).

¹ Holt, R.F. and D.J. MacKillop. 2002. Defining old-growth forests in the ESSFdk BEC subzone in the Nelson Forest Region. Draft Report prepared for Slocan Forest Products (Radium), Tembec Industries (Cranbrook), and Louisiana Pacific Engineered Wood Products (Golden).

2 Field-based Scorecard for Douglas-fir/Larch Stands in the ESSFdk

Dry FL ESSFdk Stand _____ Size (ha): _____		Site series: _____	Aspect: _____	
		FC Age: _____	Slope: _____	
	Measured Value	'High Structural Value' Threshold	"High Structure" Attribute	"Low Structure" Attribute
Largest Tree		86cm		
Largest Snag		47cm		
Largest piece of CWD		31cm		
Trees 17.5-50cm dbh		422 (Maximum)		
Trees 50-75cm dbh		32 sph		
Trees >75cm dbh		8 sph		
Trees >50cm dbh		41 sph		
Trees >50cm dbh with pathogen indicators		22 sph		
Snags 17.5-50cm dbh		95 sph		
Snags >50cm dbh		4 sph		
# Snags – All Sizes		99 sph		
CWD Volume		68 m ³		
Volume CWD Logs >40cm		19 m ³		
CWD_Vol Decay Class 3-5		52 m ³		
CWD # Decay Classes		2		
MeanAge		154 years		
MaxAge		208 years		
Landscape considerations:			Sum x 2	Sum

**Note: Use Trees>50 or Trees50-75 and Trees>75 but not both.

Figure 2. An example Scorecard for Dry FL sites in the ESSFdk. Values are on a per hectare basis (where applicable).

3 Field-based Scorecard for Spruce, Subalpine fir, Pine Stands in the ESSFdk

The index of old-growthness for the Dry SBP is correlated with productivity and not with stand age. Based on the PCA analysis, we suggest that old growth management areas should be located across the range of site productivity. As PCA_1 demonstrates, highly productive areas should be included in reserve networks where possible since these sites appear to have more large structural attributes and to develop old-growth characteristics at a faster rate and an earlier age.

Dry SBP ESSFdk		Site series: _____	Aspect: _____	
Stand _____	Size (ha): _____	FC Age: _____	Slope: _____	
	Measured Value	'High Structural Value' Threshold	"High Structure" Attribute	"Moderate Structure" Attribute
Largest Tree		70cm		
Largest Snag		48cm		
Largest piece of CWD		31cm		
Trees 17.5-50cm dbh		435 (Maximum)		
Trees >50cm dbh		26 sph		
Trees >50cm dbh with pathogen indicators		9 sph		
Snags 17.5-30cm dbh		82 sph		
Snags >50cm dbh		2 sph		
CWD Volume		110 m ³		
CWD – Sph		263 sph		
CWD_Vol Decay Class 3-5		73 m ³		
CWD # Decay Classes		3		
Landscape considerations:			Sum x 2	Sum

** Note: Use CWD Volume measure OR SPH measure but not both.

Old Growth in the MSdk¹

Scorecard for the wet MSdk (site series 05,06)

MSdk		Site series: _____	Aspect: _____	
Stand _____	Size: _____	FC Age: _____	Slope: _____	
	Measured Value	'Old' Threshold	"Old"	"Not Old"
Trees >40cm dbh		>78 sph		
Wildlife Tree Class 2 >40cm dbh		>13 sph		
Trees 25-40cm dbh		<197 sph		
Trees 12.5-25cm dbh		<261 sph		
Snags >40cm dbh		>9 sph		
Snags 12.5-25 dbh		<66 sph		
Number of pieces CWD		>247 sph		
Largest dbh (cm)		>67 cm		
Largest piece of CWD (cm)		>39 cm		
TOTAL SCORE			Sum x 2	Sum
Landscape Considerations:				
Additional Information				

¹ Holt, R.F. and D.J. MacKillop. 2001. Definitions of old-growth in the MSdk BEC unit in the Nelson Forest Region. Report prepared for the Inter-Agency Management Committee, Min. Env., Lands and Parks. Includes the new MSdk an MSdw in BECv11 onward.