

Preamble

This order establishes non-spatial landscape biodiversity objectives, in the Mackenzie Forest District, for:

- A. old forest retention;
- B. old interior forest retention

These objectives were developed considering the social direction of the Mackenzie Land and Resource Management Plan (LRMP) combined with current scientific information regarding the natural range of variability.

These objectives may be periodically reviewed and updated to reflect new knowledge or changing environmental, economic, and social conditions. This may include establishing objectives for mature forest retention.

Implementation guidance is available which supports this Order and provides further advice on managing for old forest retention and old interior forest retention.

The preamble is intended to provide background and context but does not form part of the order.

Ministry of Agriculture and Land

Ministerial Order

Non-spatial Landscape Biodiversity Objectives in the Mackenzie Forest District

Part I Interpretation

1. Relationship with the Forest and Range Practices Act

1.1 Pursuant to section 93.4 of *The Land Act* the following objectives are established as land use objectives for the purposes of the Forest and Range Practices Act and apply to the landscape units shown on Map #1 and listed in Table 1.

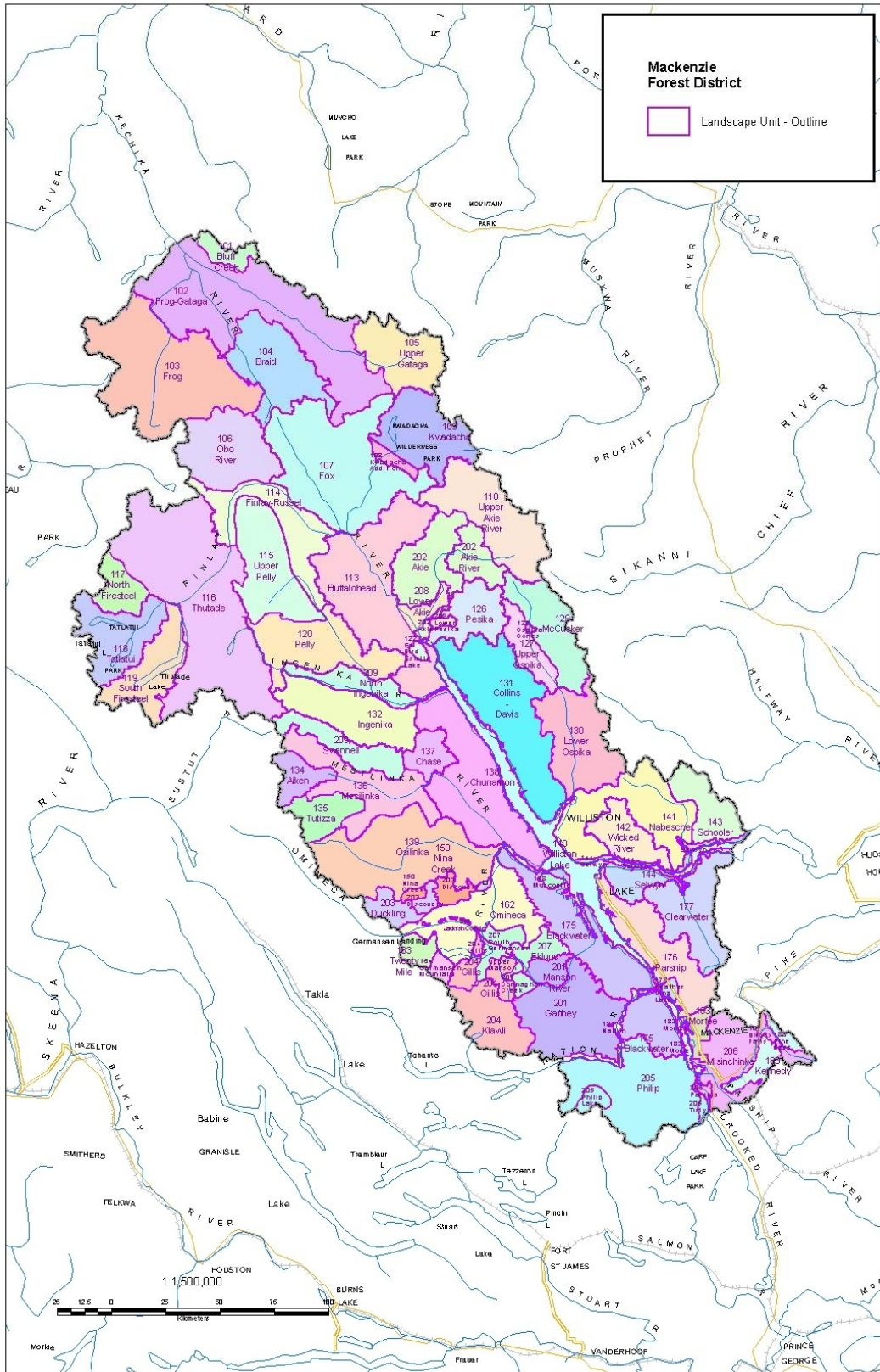
1.2 These objectives apply to all Crown land in the Mackenzie Forest District, except for lands covered by woodlot licences, research forests or community forests licences that are 600 hectares or smaller.

1.3 These objectives replace the *Order Establishing Provincial Non-Spatial Old Growth Objectives (June 30, 2004)* for the areas covered by this order.

1.4 In accordance with section 5 of the Land Use Objective Regulation, it is disclosed that there is a “conflict” with an existing established objective. The nature and extent of the conflict is as follows:

The “conflict” is with *Section 1.A.g. and Table 2* (for the portion that relates to “old”) of the *Order to Establish the Obo River and Fox Landscape Units and Objectives (November 1, 2002)*. The nature and extent of the conflict is minor and is due to this Order (that is, *Non-spatial Landscape Biodiversity Objectives*) combining biogeoclimatic units to facilitate operational implementation. In the event of any uncertainty regarding the management of old forest retention, this Order (that is, *Non-spatial Landscape Biodiversity Objectives*) applies.

Map #1: Landscape Units for the Mackenzie Forest District



1.5 Definitions:

“**Biodiversity Emphasis Option**” (**BEO**) is a designation assigned to Landscape Units through a process conducted by government and endorsed by the Mackenzie Land and Resource Management Planning Table.

“**Biogeoclimatic**” (**BEC**) is a ecological classification system used in British Columbia based on biological, geological and climatic conditions.

“**Biogeoclimatic Grouping**” means an amalgamation of Biogeoclimatic variants as indicated in the table below, for the purposes of implementing objectives 2 and 3.

Table 1: Biogeoclimatic Groups and their respective variants used in Objectives 2 and 3.

Biogeoclimatic Group	Biogeoclimatic variants within Biogeoclimatic Group
1	ESSFmcp, ESSFmvp2, ESSFmvp3, ESSFmvp4, ESSFwcp3, SWBmks
2	ESSFmc, ESSFmv2, ESSFmv3, ESSmv4, SWBmk
3	ESSFwc3, ESSFwk2
4	SBSmk1, SBSmk2, SBSwk1
5	SBSvk, SBSwk2
6	BWBSmw1, BWBSwk2 (Con)
7	BWBSdk1 (Con)
6 & 7	BWBS deciduous leading

“**Community forest agreement area**” means the area of land subject to a community forest agreement as defined under the *Forest Act*.

“**Crown Forest Land Base**” means provincial Crown land which is forested. It has generally been divided into: non-contributing land base (e.g. parks, inoperable forest and environmentally sensitive areas); and, timber harvesting land base (i.e. suitable and available for timber harvesting). It does not include excluded land base, such as private land, federal land, municipal land and woodlots licenses.

“**Deciduous species**” means birch or aspen.

“**Licensee**” means a person or party required to prepare a forest development plan under *the Forest Practices Code of B.C. Act* or a forest stewardship plan under the *Forest and Range Practices Act*.

“**Natural Forest Area**” means an area in the mountain pine beetle infested units which has not been harvested and is in one or more of the following stages: old forest; dying forest; dead forest; or, young natural forest.

“**Old Forest**” means forests in BEC units SBSmk1 and SBSmk2 that are greater than 120 years old; forest in deciduous leading stands in BWBS BEC units that are greater than 100 years old; and, forests in all other stands and BEC units that are greater than 140 years old.

“**Young forest**” means forested areas which are between 0 and 20 years old.

Part II Objectives

2. Old Forest Retention

Maintain Old Forest on the Crown Forest Land Base (CFLB) in accordance with Table 2 and subject to the following:

- a) the target amount of old forest retention can be made up of live Old Forest and / or Natural Forest Area and. The proportion of Natural Forest Area that can contribute to the target can not exceed the percentage of the area that is affected by the epidemic or catastrophic event (for example, the mountain pine beetle epidemic);
- b) of the target amount listed in Table 2 and that proportion made up of live Old Forest, up to 20% can come from stands less than the age of old, where it can be demonstrated that equal or better conservation benefits would result;
- c) where harvesting of beetle wood or wildfire has eliminated opportunities for retention, then stands closest in age, to the minimum age of Old Forest must be identified and maintained such that a forest conditions results that is consistent with objective 2 in the shortest possible timeframe; and,
- d) Heather Dina Lake Park, Muscovite Lakes Park, and Ed Bird Estella Lake Park are contained within the corresponding landscape units (Parsnip, Blackwater, and Buffalohead) may contribute to the old forest retention targets.

Table 2: Old Forest Retention Requirements by Landscape Unit (or Landscape Unit Group) for the Mackenzie Forest District

Landscape Units (or Landscape Unit Group)	Biodiversity Emphasis Option	Biogeoclimatic Group	Minimum % of CFLB Retained as Old Forest
Akie, Akie River	Low	2	9
Akie, Akie River	Low	7	11
Blackwater	Low	2	9
Blackwater	Low	3	9
Blackwater	Low	4,7	11
Buffalohead	Low	2	9
Buffalohead	Low	5	11
Chunamon	Low	2	9
Chunamon	Low	7	11
Chunamon	Low	4	11

Landscape Units (or Landscape Unit Group)	Biodiversity Emphasis Option	Biogeoclimatic Group	Minimum % of CFLB Retained as Old Forest
Collins-Davis	Low	3	19
Collins-Davis	Low	2	9
Collins-Davis	Low	5	9
Collins-Davis	Low	7	11
Collins-Davis	Low	4	11
Germansen Mountain	Low	2,7	9
Gaffney, Manson River	Low	2	9
Gaffney, Manson River	Low	5	9
Gaffney, Manson River	Low	4	11
Mesilinka	Low	2	9
Mesilinka	Low	7	11
Osilinka	Low	2	9
Osilinka	Low	4, 7	11
Aiken	Intermediate	2	9
Aiken	Intermediate	7	11
Clearwater	Intermediate	3	19
Clearwater	Intermediate	2	9
Clearwater	Intermediate	5	9
Discovery, Duckling	Intermediate	2	9
Discovery, Duckling	Intermediate	7	11
Gillis, Klawli	Intermediate	2	9
Gillis, Klawli	Intermediate	7	11
Gillis, Klawli	Intermediate	4	11
Ingenika	Intermediate	2	9
Ingenika	Intermediate	7	11
Lower Ospika	Intermediate	3	19
Lower Ospika	Intermediate	2	9
Lower Ospika	Intermediate	5	9
Lower Ospika	Intermediate	4	11
Morfee	Intermediate	3	19
Morfee	Intermediate	5	9
Morfee	Intermediate	4	11

Landscape Units (or Landscape Unit Group)	Biodiversity Emphasis Option	Biogeoclimatic Group	Minimum % of CFLB Retained as Old Forest
Nabesche	Intermediate	3	19
Nabesche	Intermediate	2	9
Nabesche	Intermediate	5	9
Nabesche	Intermediate	6	11
Nabesche	Intermediate	4	11
Parsnip	Intermediate	3	19
Parsnip	Intermediate	2	9
Parsnip	Intermediate	5	9
Parsnip	Intermediate	4	11
Pesika	Intermediate	2	9
Pesika	Intermediate	7	11
Schooler	Intermediate	2	9
Schooler	Intermediate	6	11
Twenty Mile	Intermediate	2	9
Twenty Mile	Intermediate	7	11
Misinchinka, Tudyah B	Low / Intermediate	2	9
Misinchinka, Tudyah B	Low / Intermediate	5	9
Misinchinka, Tudyah B	Low / Intermediate	4	11
Misinchinka, Tudyah B	Low / Intermediate	3	19
Philip, Philip Lake, Tudyah A	Low / Intermediate	2	9
Philip, Philip Lake, Tudyah A	Low / Intermediate	5	9
Philip, Philip Lake, Tudyah A	Low / Intermediate	4	11
Connaghan Creek, Eklund, Jackfish, South Germansen-Upper Manson	High	2, 5	13
Connaghan Creek, Eklund, Jackfish, South Germansen-Upper Manson	High	7	16
Connaghan Creek, Eklund, Jackfish, South Germansen-Upper Manson	High	4	16

Landscape Units (or Landscape Unit Group)	Biodiversity Emphasis Option	Biogeoclimatic Group	Minimum % of CFLB Retained as Old Forest
Fox	High	2	13
Fox	High	7	16
Kennedy	High	3	28
Kennedy	High	5, 4	13
LowAkie, LowPesika	High	2	13
LowAkie, LowPesika	High	7	16
Nation	High	4, 5	16
Nina Creek	High	2	13
Nina Creek	High	7	16
North Ingenika, Swannell	High	2	13
North Ingenika, Swannell	High	7	16
Obo River	High	2	13
Obo River	High	7	16
Pelly	High	2	13
Pelly	High	7	16
Selwyn	High	3	28
Selwyn	High	5, 2	13
Selwyn	High	6, 4	16
Thutade	High	2	13
Thutade	High	7	16
Tutizza	High	2, 7	13
Upper Ospika	High	2, 3	13
Upper Ospika	High	4	16
LUs with enhanced management emphasis	Low	BWBS (deciduous leading only)	13
LUs with general management emphasis	Intermediate	BWBS (deciduous leading only)	13
LUs with special management emphasis	High	BWBS (deciduous leading only)	19

3. Old Interior Forest Retention

Maintain a percentage of the Old Forest retention requirements as Old Interior Forest retention as per Table 3, subject to the following:

a) where harvesting of beetle wood or wildfire has eliminated opportunities for retention of Old Interior Forest retention, then stands closest in age, to the minimum age of Old Forest must be identified and maintained such that a forest condition results that is consistent with objective 3 in the shortest possible timeframe.

b) Heather Dina Lake Park, Muscovite Lakes Park, and Ed Bird Estella Lake Park are contained within the corresponding landscape units (Parsnip, Blackwater, and Buffalohead) may contribute to the old interior forest retention targets.

Table 3. Mackenzie Forest District Old Interior Forest Requirements

Biogeoclimatic Group	Minimum Percent of the Old Forest Retention in Table 1 that must be Old Interior Forest		
	Low BEO	Intermediate BEO	High BEO
2	10	25	25
3	25	50	50
4	10	25	25
5	10	25	25
6	10	25	25
7	10	25	25

Part III Effective Date and Future Orders

- 4.1. This Order takes effect on the date that this order is published in the Gazette.
- 4.2. This Order does not affect any Category A cutblocks approved pursuant to the *Forest Practices Code of British Columbia Act* on or before the effective date.
- 4.3. For the purposes of the *Forest and Range Practices Act*, and despite subsection 16(2) of that Act, all forest stewardship plans submitted after the effective date must be consistent with this Order.
- 4.4. For the purposes of the *Forest and Range Practices Act*, the period of time under section 8(2)(b) is 1 year.

Original signed by Howard Madill

April 9, 2008

Acting Regional Executive Director,
Northern Region,
Integrated Land Management Bureau
Ministry of Agriculture and Lands

Date

Implementation Guidance

This policy applies to the application of the Order Establishing Non-Spatial Landscape Biodiversity Objectives for Mackenzie Forest District. It is not legally binding.

1. Interim Measures for Natural Forest Areas (NFAs)

Due to the extraordinary situation of the Mountain Pine Beetle epidemic in the Mackenzie Forest District, it is assumed there will be a deficit of live old forest in some units to meet the total old forest retention requirement. For this reason, these “non-live” old forests called Natural Forest Areas will be used as a surrogate for old forest as a means of retaining important attributes for biodiversity conservation while considering operational reality. The intention is to allow a representative quantity of Natural Forest Area to fulfill the old forest retention requirement. When considering Natural Forest Areas, the following combination of factors can be used as selection criteria:

- Remnant stands (patches) of live, old trees
- Partially killed stands (patches) that still maintain the attributes of old forest.
- Mountain Pine Beetle killed stands (patches) containing snag attributes.

Once there is new information available to verify landscape condition and the extent of the Mountain Pine Beetle impact is fully realized, the interim measure for Natural Forest Areas to ensure species representation, will be revisited.

A licensee that is affected by an epidemic or catastrophic event may ensure a representative portion of the stand is used to contribute to the Old Forest Retention and Old Interior Forest Objective by maintaining the percentage of live timber that contributes to meeting the objective that is in proportion to the percentage of the area that is not affected by the epidemic or catastrophic event.

2. Rationale for future Old Growth Management Areas (OGMAs)

Integrated Land Management Bureau (ILMB) is currently working with Licencees / BC Timber Sales and First Nations to develop spatial Old Growth Management Areas (OGMAs) in priority landscape units in the Mackenzie Forest District. ILMB recognizes the need to develop OGMAs that capture representative elements of old forest that are contained in the diverse landscape of the Mackenzie Forest District, as well as the need to provide operational flexibility to meet the challenges presented by other planning process (i.e. species at risk planning for Caribou and other wildlife planning conducted by the Ministry of Environment) that will impact the Crown forest in the Mackenzie Forest District. Therefore, OGMAs will be developed roughly in the amount equivalent to the figures required in Table 3 of the Order for old interior forest retention and Table 2 for old forest retention, through a public process.

3. Old Forest Retention and Interior Old Forest Retention Targets by Landscape Unit Groups

Some landscape units were so small that it was not reasonable for forest licensees and BC Timber Sales to meet seral retention targets recommended by the Mackenzie LRMP. Therefore, some landscape units listed in Table 2 are grouped for the purpose of providing a larger area over which to meet the old forest and old interior forest targets noted in Tables 2 and 3 of the order. It is expected that licensees will endeavour to meet these targets using a balanced approach that incorporates both an understanding of natural disturbance patterns and the social, economic, and cultural considerations contained in the LRMP for general management, resource management zone, and subzone direction. Using direction from the LRMP, it is also anticipated that retention of old forest and interior old forest will be distributed across landscape units that are grouped in Table 2.

4. Interior Forest Condition

The purpose of an interior old forest objective is to provide a criterion for old forest and/or natural forest area that meets the needs of species that are old forest dependant and are adversely affected by edge. Through this objective, as well as old forest retention, we are attempting to emulate natural disturbance landscape patterns; realizing that we are unable to completely approximate the natural landscape patterns and characteristics established by stand initiating events in the past.

The interior old forest objective is a critical component of assessing the quality and values of the aspatial old forest objective. The interior old forest objective should be managed with a temporal perspective (i.e. meeting the objective over time) and Forest Licensees and BC Timber Sales will have to keep the temporal aspect of this objective in mind in order to successfully manage it over time.

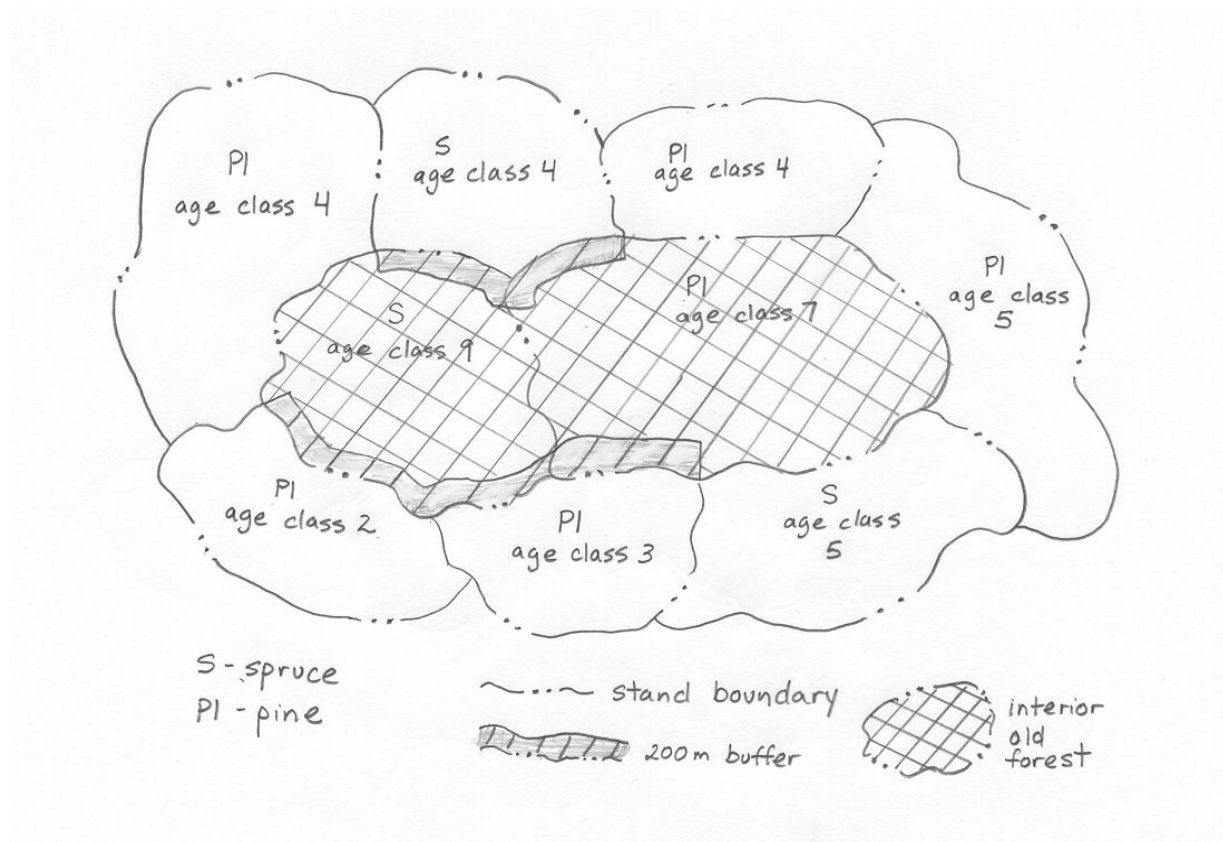
For consistency and to report on the status of the Old Interior Forest retention objective the following methodology is suggested:

Old Interior Forest is area of Old Forest or Natural Forest Area that is at least 200 metres from younger age classes or natural features that will affect species that require interior forest habitat or those area away from an edge where light, wind and microclimate are affected by an opening. The table below provides modelling standards for calculating the old interior forest area.

Table of required buffer distances for old interior forest area

	Adjacent Age Class	Buffer Distance
pine and deciduous leading stands	Not Satisfactorily Restocked (NSR) or age class 1-3	200 metres
	age class 4-9	0 metres
all other species - leading stands	NSR or age class 1-4	200 metres
	age class 5-9	0 metres

Interior old forest buffering example in unit where old forest is >120 years old (e.g. SBS mk1)



A buffer of 200 metres extending from the edge of the old forest into the old forest is excluded when calculating the amount of old interior forest for:

- lakes;
- transportation corridors attributed to all primary access roads (e.g. Forest Service Roads);
- pipelines;
- railways; and,
- hydro transmission corridors.

No buffering is required to calculate the amount of old interior forest for transportation corridors attributed to secondary and tertiary roads.

5. Biogeoclimatic Ecosystem Classification Groups Less than 2,000 Hectares in Size

Table 1 contains a list of the primary Biogeoclimatic Ecosystem Classification (BEC) groups that are to be used for maintaining and monitoring the objectives. However, some smaller BEC units are combined in Table 1 with a different group where the area is too small to reasonably manage (that is, less than 2,000 hectares of Crown forested land base) in a landscape unit. For the purpose of Objective 2, where it can be demonstrated that there are other landscape units or landscape unit groups containing BEC groups with less than 2,000 hectares of Crown forested land base, a proposal may be submitted to the designate of the Minister of Agriculture and Lands to combine BEC group targets. Biogeoclimatic Group 1 is not listed in Objective 2 because large scale commercial timber harvesting is not anticipated in this Biogeoclimatic Group. However, where harvesting occurs, it is expected that management operations will be conducted in accordance with the *Mackenzie Land and Resource Management Plan*.

6. Wilderness Landscape Units (Special Resource Management Zones – Wildlands)

The following landscape units are to be managed as Special Resource Management Zones - Wildlands, as per the Mackenzie Land and Resource Management Plan (LRMP):

- Bluff Creek;
- Braid;
- Frog;
- McCusker;
- North Firesteel;
- South Firesteel;
- Upper Akie River;
- Upper Gataga;
- Upper Pelly; and,
- Wicked River

As per the LRMP: “Wildlands are intended to emphasize and market the conservation values and the exclusion of commercial timber harvesting from these zones; emphasis on ecological conservation, wilderness and commercial & non-commercial back-country recreation; mineral and oil and gas exploration is permitted; non-roaded exploration promoted; any roaded access is temporary; subject to assessment of impacts and public review (access planning).” The Mackenzie LRMP is a government approved land use plan but this particular section of the plan is not considered “legal” but rather “guidance”.

7. Roles and Responsibilities

Forest Licensees or BC Timber Sales:

- Prepare Forest Stewardship Plans.
- Coordinate and demonstrate implementation and compliance.
- Participation with coordination group for this Order.

Integrated Land Management Bureau:

- Provide advice and interpretation to agency staff related to the objectives and implementation policy.
- Participate in the discussion and process regarding amendment to this Order.
- Participation with coordination group for this Order.

Ministry of Forests:

- Approval of Forest Stewardship Plans.
- Compliance and Enforcement activities.
- Participation with coordination group for this Order.

Other Agencies (e.g. Ministry of Environment)

Provide review and advice regarding the objectives and their implementation.

8. Adaptive Management Process

Adaptive management principles will apply to this process, with periodic monitoring of the objectives. As a minimum, a review will coincide with Timber Supply Review process in the Mackenzie Timber Supply Area.

Certain elements that are uncertain or require additional analysis could be the focus of the monitoring program.

Some of the elements of this order that could be reviewed and / or revised may include:

- Administrative boundaries;
- Demonstrated ability to perform in a coordinated effort;
- Old forest retention targets;
- Cumulative impact analysis for all biodiversity elements (old forest retention and interior forest condition);
- Interior forest condition methodology;
- Demonstrated ability to maintain quality old growth values on the landscape;
- Business case for the need to establish more spatial Old Growth Management Areas;
- Inclusion of new and better inventory information; and,
- Age definition of old forest.

Stand damaging events have, and will continue to occur and adaptive management will be required to keep these objectives current.

It is suggested that a “coordination group”, similar to the Landscape Objective Working Groups (Data Management and Analysis Team and the First Nations Team), would continue but have a mandate to focus on implementation, monitoring and recommendations for changes to these objectives.

References:

DeLong, S.C. May 1999. *Natural Disturbance Block, Design Workbook*. Unpublished report. Ministry of Forests, Prince George, B.C.

DeLong, S.C. 2002. *Natural Disturbance Units of the Prince George Forest Region: Guidance for Sustainable Forest Management*. Unpublished report. Ministry of Forests, Prince George, B.C.

Mackenzie Timber Supply Area Old Forest, Prepared by Forsite Consultants – March, 2004

Ministry of Environment, Lands, and Parks. (1995). *Biodiversity Guidebook*. Forest Practices Code of British Columbia. Province of British Columbia.

Province of British Columbia Interagency Management Committee (Mackenzie). (2000). *Mackenzie Land and Resource Management Plan*. Ministry of Environment, Lands, and Parks. Prince George.

Timber Supply Analysis and Report Mackenzie Timber Supply Area: Guidance for Sustainable Forest Management via Natural Disturbance Units prepared by Industrial Forestry Service Ltd. (lead by Rob Schuetz) – December 2003.

Documents *Natural Disturbance Units of the Prince George Forest Region: Guidance for Sustainable Forest Management* and *Natural Disturbance Block Design Workbook* can be located at: ftp://ftpfsj.env.gov.bc.ca/pub/outgoing/srm/planning/landscape_level/NDU_documentation/