



Timber harvest planning and operating ground rules

Edson Forest Products (West Fraser)
Forest Management Plan/Agreement
Area-Specific Addendum

Alberta 

2023

EDSON FOREST PRODUCTS, A DIVISION OF WEST FRASER MILLS LTD.

**FOREST MANAGEMENT AGREEMENT SPECIFIC
ADDENDUM-TIMBER HARVEST PLANNING AND
OPERATING GROUND RULES**

**Edson Forest Products,
A Division of West Fraser
Mills Ltd.**

**ALBERTA
FORESTRY, PARKS AND
TOURISM**

ENDORSEMENTS

The Edson Forest Products, a Division of West Fraser Mills Ltd. FMA Timber Harvest Planning and Operating Ground Rules, having been prepared in accordance with Section 16 (2) of FMA 9700032, and hereby endorsed this 27th day of April, 2023.

Edson Forest Products, A Division of West Fraser Mills Ltd.

HIS MAJESTY THE KING in right of Alberta as represented by the Minister of Forestry, Parks and Tourism

Original Signed

Original Signed

Per:

Per:

Tyler Stenecker

Ken Greenway

(print name)

(print name)

Woodlands Manager

Executive Director

(title)

(title)

Preamble

The Timber Harvest Planning and Operating Ground Rules – FMA Specific Addendum (the “Addendum”) is a reference manual that provides regulatory guidance and direction to be used by timber harvest planners, forest operators and other forestry professionals involved in implementing forest management plans (FMP). Items within the Addendum are required for implementation of unique or specific strategies within the FMP and/or are specific to an individual FMA. The Addendum will work in concert with the standardized Provincial Timber Harvest Planning and Operating Ground Rules (Provincial OGR). The Addendum is Section 4 to Sections 1, 2 and 3 in the Provincial OGR. Rules found in the Addendum will supersede those found in the Provincial OGR when they address the same objective.

Contents

Preamble.....	3
Introduction.....	5
Authorizations and Legislation	5
4.1 Timber Harvest and Reforestation Planning Requirements	6
4.2 Operational Ground Rules.....	7
4.2.1 Structure Retention	7
4.2.2 Species of Special Management Concern	11
4.2.3 Soils	13
4.3 Monitoring and Reporting	14

Introduction

These Addendum Ground Rules will supersede rules in the Provincial OGR where there are rules addressing the same objective.

Authorizations and Legislation

This Agreement inures to the benefit of and is binding upon the Crown and His heirs, successors and assigns, and the Company and its successors and assigns.

4.1 Timber Harvest and Reforestation Planning Requirements

GROUND RULES

- 4.1.1 The GDP submission date is May 1 of each year although operators may choose to submit earlier as approved by Alberta.
- 4.1.2 The AOP submission date is April 1 of each year unless otherwise approved by Alberta.
- 4.1.3 The reforestation program submission date is April 15 of each year unless otherwise approved by Alberta

4.2 Operational Ground Rules

4.2.1 Structure Retention

PURPOSE

- To create temporary refuges for forest biota to re-colonize harvest areas.
- To maintain snags and live residual trees in harvested areas for biota that depend on these structures following natural disturbances.
- To provide wildlife thermal and hiding cover within harvest areas throughout the rotation.
- To provide wildlife travel corridors within large harvest areas and compartments.

DISCUSSION

Although many types of natural disturbance (fire, floods, avalanches, wind events, insects and disease infestations, and slumps) occur within Alberta's forests, fire is the most common. Virtually all trees within intense fires are killed, but following low and moderate-intensity fires many scattered live trees are present. In addition, within all fire types, fire "skips" or "islands" result in residual patches of live trees remaining within larger burned areas. Following other types of natural disturbances, even higher densities of live trees, and patches of live trees, are present. Approximately 30% of the birds and mammals living in Alberta's forests nest, forage or find shelter within live trees that have a basal diameter greater than 20 cm. Many of these species are able to use single large live trees and residual patches of large live trees that remain after natural disturbances.

The retention of single trees and patches of large live trees in harvest areas makes the harvested areas more similar to burned areas. In addition, residual live trees may create some old forest attributes in young regenerating harvest areas. Many of the birds, mammals, insects, beetles, fungi and nonvascular plant species that live in recently disturbed forests require large snags for food and shelter. This unique biotic community changes rapidly as the snags fall and the downed logs are incorporated into the forest floor. Some biota become rare within ten years following a fire, and many of the early colonizing species have disappeared by the time the stand is twenty years old.

Retaining some large snags within harvest areas creates habitat for some biota associated with naturally disturbed habitat. Additional large snags may be created, by retaining large live trees, as some of these trees will die throughout the rotation. To a large extent, however, it will be necessary to rely on natural disturbances to create abundant large snags for biota that depend on this dead woody material.

Where larger harvest areas are created, it is important to retain a number of individual trees, snags and residual tree patches distributed across the harvest area. These residual tree patches shall be located such that natural features, riparian areas, wildlife features, stand structure and composition, and proximity to standing forests are taken into account to maximize their utility or usefulness by the biotic community.

Current information suggests that ecological benefits are directly proportional to the amount of structure retention; ecological benefits increase with greater levels of structure retention. Larger patches of residual structure generally have more benefits than smaller patches (lower blowdown probability, interior forest characteristics, hiding and thermal cover) and patches generally have more benefit than individual stems.

DEFINITIONS

To successfully implement this structure retention strategy, there needs to be some agreed upon definitions. FMP provide further descriptions and graphics for illustration. The definitions with respect to EFP's Structure Retention Strategy are as follows:

Harvest unit – The harvest unit includes both the area where trees have been removed by harvesting as well as the area where trees have been retained in dispersed and island retention patches. Individual harvest units are identified by unique opening numbers.

Island Retention – Undisturbed patch within the harvest unit boundary but not connected to the edge. No harvesting is permitted in island retention patches; however, these retention patches may be harvested in the next rotation.

Peninsular Proximal retention – A patch which is connected to a portion of the harvest unit boundary – peninsulas and certain watercourse buffers are potential examples of peninsular proximal retention. Peninsular proximal retention under EFP's strategy is defined as only those areas of peninsular retention protruding in the harvest area that are at least twice as long as they are wide (at its widest spot). These peninsular patches may extend across the harvest area and connect with the opposite harvest area boundary.

Representative – Retention should reflect the species removed from the site in relatively the same proportion, but there is some flexibility here to address other issues such as MPB and the value of aspen as wildlife trees.

Dispersed retention (single tree/clumps) – Dispersed retention can be converted to an area by using the following formula (dispersed retention should be determined following site preparation treatments):

- o Area = (number of live trees/piece size) / (average volume per ha)
- o where piece size = number of trees equaling 1m³ net merchantable volume
- o Example: # live trees = 54, piece size = 3 trees / m³, average volume/ha = 180m³ /ha.
Area = (54 trees/3 trees/m³ / (180m³ /ha) = 0.1 ha of structure retention

BEST MANAGEMENT PRACTICES

- Distribution and placement of retention should consider wind firmness to help ensure that most the retention remains standing in the years following harvest. This consideration may influence how much retention is in islands versus being distributed in small clumps and single trees.
- Retention patches should be pre-planned and not left to logging contractor discretion. The majority of retention patches will be pre-planned and finalized at the harvest opening layout stage and incorporated into the GDP, if possible, and in the AOP. This will provide an early indicator of meeting the FMA wide structure retention target. Where available planners should use Alberta Vegetation Inventory, aerial photography, digital elevation mapping, LiDAR-enhanced inventories, and wet areas mapping to identify potential retention sites.
- Retention patches should be planned so they are >2 tree lengths apart and >2 tree lengths away from the harvest opening boundary. If narrower gaps are necessary, there must be room between patches for site preparation equipment to operate between patches.

GROUND RULES

- 4.2.1.1 Dispersed and island retention will collectively total a minimum of 3% of the total area harvested on the FMA over a five-year period. Dispersed and island retention should be representative of the trees removed during harvest, including the full range of species and size classes. Peninsular proximal retention does not contribute to this target. A higher target may be established to address ecological considerations and social values.
- 4.2.1.2 Island buffers that are retained around sensitive sites (as per 2.6.1 of Provincial OGR) can be counted as structure retention and may be included in achieving the FMP targets.
- 4.2.1.3 All merchantable and representative islands or dispersed trees within the harvest area will count towards the target, regardless if they are in the contributing (i.e. active) landbase or the non-contributing (i.e. passive) landbase. For example, small sections of steep slopes in the passive landbase within a block could count toward the target if they are merchantable and representative.
- 4.2.1.4 A minimum of 1.5% dispersed and island retention is required within all individual harvest units that is representative of the trees removed during harvest, with the following exceptions:
 - 4.2.1.4.1 Harvest units less than 5 hectares in size. However, the area within these harvest units will still contribute to the total harvest unit area used to determine amount of required retention.
 - 4.2.1.4.2 Harvest units where retention reduces the effectiveness of harvesting that is for direct control of a damaging agent or instances where a forest health damaging agent could be passed onto the regenerating stand. This exemption requires review from the area forest health officer and approval by the senior forester. However, the area within these harvest units may still contribute to the total harvest unit area used to determine amount of required retention (decision to be made by the senior forester).
- 4.2.1.5 Structure retention shall not be harvested for one rotation.
- 4.2.1.6 Planned large retention patches (≥ 1 ha) will be removed from the block at the planning stage. Forest planners will design the shape of large patches to help minimize blow down and meet other landscape level objectives.
- 4.2.1.7 Retention patches ≥ 0.04 ha will be removed from the block design at the field layout stage and make up the final block design in GDP, if possible, and in the AOP. These retention areas will be captured using GPS and marked with ribbon to prevent harvesting and ensure that structure retention targets are met on a FMA wide scale.
- 4.2.1.8 Harvest operations will be conducted as per final block design approved in AOP to maintain structure retention. Additional retention patches may be created during harvesting at operator and EFP discretion to add to existing structure retention targets. Single trees and clumps may also be added operationally around specific features.
- 4.2.1.9 Following harvest, all openings will have final boundaries delineated and reported following the requirements outlined in Capturing Disturbances – Standards and Specifications for Timber Harvesting and any other corresponding Spatial Data Directives for Alberta.
- 4.2.1.10 Upon completion of harvest operations, additional retention patches added to the harvest plan will be mapped using GPS for temporary internal tracking purposes, with structure retention areas finalized to meet the requirements of Alberta's Spatial Digital Data Submission Standards through aerial or satellite photography once available. Silviculture operations will

strive to protect retention as specified in the harvest plan instructions and retained by harvest operations.

- 4.2.1.11 Single trees and small clumps of merchantable volume will be aggregated within a block by coniferous and deciduous species to determine an area estimate of structure retention. This can be completed with an ocular assessment of single trees and clumps left in the block after harvest and documented in a block inspection form, or through photo interpretation.
- 4.2.1.12 Retention patches with merchantable volume will be overlaid with the forest inventory. EFP volume tables will be applied to the retention patches to calculate merchantable coniferous and deciduous volumes. These volumes will be manually reported yearly to Alberta's Forest Revenue Scaling and Tenure System (FOREST) for annual timber production reporting as stand structure and will be used in the timber drain of coniferous and deciduous AAC volumes. Volumes of coniferous and deciduous stand structure will be reported to FOREST by the end of the year after the year of harvest. For example, blocks harvested, and skid cleared, in the 2018 timber year that ends April 30, 2019 will have stand structure volumes reported to FOREST by December 31, 2019.
- 4.2.1.13 Areas of merchantable retention patches will be summarized at the end of the year after the year of harvest (for example, at the same timing of ARIS update area reporting). Total harvest area, retention area, and reported structure retention AAC drain will be tracked, summarized and reported on in the 5 Year FMP Stewardship Report. The target for structure retention is to retain 3% of the merchantable harvest volume within openings on an FMA-wide basis over a 5-year period.
 - 4.2.2.13.1 A distinction shall be made as to what portion of the target was achieved from the passive landbase
 - 4.2.2.13.2 Structure retention volumes shall be reported to the Area forestry offices annually by calendar year end, following timber year end.
- 4.2.1.14 EFP will track and report on peninsular proximal retention and any island retention within a harvest area that does not meet the merchantable and representative definition. These areas of retention will not contribute to the 3% target; however, their tracking will contribute to identifying areas contributing to landscape level retention objectives.
- 4.2.1.15 All tenure holders shall follow the Structure Retention Strategy
- 4.2.1.16 Operational buffers on shallow open water or semi-permanent marsh will count fully towards retention targets if internal to the harvest opening.

4.2.2 Species of Special Management Concern

Grizzly Bear

DISCUSSION

EFP's FMA is covered by core and secondary grizzly bear habitat with summer harvesting being necessary for the long term viability of the company. Recognizing that summer ground is spread throughout the FMA and is a derivative of topography and soils, the company will have to access some summer ground in grizzly bear habitat. As well, reforestation of all harvest areas is a legal obligation of the company which may also influence timing of access reclamation. Harvest planning will mitigate the impacts on grizzly bear through either timing of harvest or management of access.

GROUND RULES

- 4.2.2.1 As agreed to between the company and Alberta, effective forms of public access control for highway vehicles shall be maintained. Control of highway vehicle use of any open temporary or permanent access route may be required. All "non-traditional" access routes that are open must have measures in place to prevent highway vehicle traffic. Options for access management on "traditional" routes must be considered in the GDP and AOP. The need for options to manage off highway vehicle traffic must be considered in the GDP and AOP. See section 4.2.9 of Addendum and 2.16 of Provincial OGR for more detail on Access Management.

COLDWATER FISH- Athabasca Rainbow Trout, Arctic Grayling and Bull Trout

DISCUSSION

Arctic Grayling are classified as a "Species of Special Concern" under the Alberta Wildlife Act. and Athabasca Rainbow Trout and Bull Trout are classified as "Endangered" and "Threatened" respectively under the Species at Risk Act (SARA). One of the greatest contributing factors threatening these species related to the forest industry is the density of linear features (e.g., DLO roads, skid trails, and all pre-existing access). Development of the operational plan must focus on ensuring that best management practices related to construction, maintenance and reclamation of roads is in place, with the primary intent being the protection of fish habitat and productivity. This is achieved through the maintenance of natural hydrologic processes, avoiding erosion, and increasing protection of streams where risks to these species are identified.

Timber harvest planning and operating ground rules must reflect the sensitive nature of these species. These operating rules serve three primary purposes:

- a) protection of the long-term integrity, connectivity, productivity and access of arctic grayling, Athabasca rainbow trout and bull trout to the spawning, rearing, feeding and over wintering habitat within the watershed;
- b) protection of water quality and quantity metrics that provide a key component of the habitat that supports native fish species within watersheds (e.g. temperature, dissolved oxygen

- content, natural sediment, avoidance of anthropogenic sedimentation and productivity) to ensure the continued occupancy and use of historical watersheds by these species; and
- c) minimize the industrial footprint and density of linear features intersecting watercourses within arctic grayling, Athabasca rainbow trout and bull trout watersheds to reduce the potential for secondary disturbance and mortality from recreational use.

BEST MANAGEMENT PRACTICES

- Locations of existing arctic grayling, Athabasca rainbow trout and bull trout can be identified using the Fisheries and Wildlife Management Information System (FWMIS), and the associated Fish and Wildlife Internet Mapping Tool (FWMIT).

GROUND RULES

- 4.2.2.2 As per FMP, mitigation tactics are required and shall be addressed in the GDP for all watersheds with the following:
 - a) ECA exceeding 50% threshold at any time
 - b) ECA exceeding 30% threshold in years 0-20 (ie. Watersheds 30, 55)
 - c) current FSI score of 1-4 and ECA 30-50% (ie. Watershed 11)
- 4.2.2.3 West Fraser shall develop access control plans for new permanent resources roads, including access control measures to minimize disturbance and threats created from public access.
- 4.2.2.4 Conduct operations within Restricted Activity Periods as found in Appendix 3 of the FMP's Native Fish Habitat Conservation Strategy.

Barred Owl

GROUND RULES

- 4.2.2.5 In Compartments 11, 12, 13, 22 and 23, the following considerations are required to address nesting requirements of barred owl:
 - a) Incorporate barred owl habitat preferences when locating structure retention.
 - b) Retain large diameter (>26cm) deciduous trees where practicable
 - c) Retain additional structure (including snags and coarse woody material) to improve the habitat quality for prey populations.

Mountain Goat and Bighorn Sheep

DISCUSSION

Though bighorn sheep and mountain goats are not at risk of extirpation, they occupy unique alpine environments and are a highly sought-after big game species in Alberta. Evidence suggests that repeated disturbance from human activity may affect population success and production therefore these provisions also address human disturbance.

In the Edson FMA area small portions of the western border occur within identified sheep and goat range where this habitat conservation strategy applies. The most significant overlap is within wildlife management unit 434.

The objectives of this habitat conservation strategy are to avoid land use disturbances that may have a direct or indirect adverse effect on the behavior of sheep and goats; avoid permanent alteration of physical habitat conditions and; minimize permanent access.

GROUND RULES

- 4.2.2.6 All timber disposition holders shall conduct activities in the late-summer, fall and early-winter to avoid disturbance during the spring lambing/kidding season and to avoid disturbance to animals during the critical late-winter months. Where activities cannot be restricted to the period indicated, West Fraser will notify Alberta and will complete monitoring of winter operations and curtail operations when deemed detrimental to wintering goat and sheep. Upon request, West Fraser will provide any site level assessments completed to Alberta.
- 4.2.2.7 West Fraser shall minimize roads by using existing access/cut-lines, temporary roads, and will follow relevant Integrated Land Management (ILM) plans and access plans therein (e.g. Chungo ILM).
- 4.2.2.8 Daily activities shall not occur within 400 metres from observed sheep or goats.
- 4.2.2.9 If a mineral lick is discovered within sheep and goat range, West Fraser shall maintain visual screening for trails leading to/from alpine areas and report the mineral lick finding to the area AEP wildlife biologist. Slope may be used to provide visual cover as an alternative to vegetation where it exists.
- 4.2.2.10 If/when West Fraser harvests sequenced stands within sheep and goat range, West Fraser shall seek collaboration with Alberta to investigate bighorn sheep use patterns of harvested areas.
- 4.2.2.11 No activity or operations within the Prime Protection area unless activities are considered essential for wildlife habitat improvement, fire control and timber sanitation cutting.

4.2.3 Soils

Provisions for reforestation of temporary roads, bared landing areas, and displaced soil created by timber harvesting operations shown in 6.4.23 (VOIT 23), Table 120- Silviculture Matrix in the 2018 FMP are adequate. Ground Rule 2.13.1 of 2022 Provincial OGR is, therefore, not applicable.

4.3 Monitoring and Reporting

GROUND RULES

- 4.3.1 Summary information submitted annually as per 3.1.4 of Provincial OGR must be in a format mutually agreed to by the companies and the Edson Forest Area.