

# Interim Retention Guide

Nova Scotia Crown Land

December 2018



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Interim Retention Guide:  
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Department of Lands and Forestry  
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# Interim Retention Guide – Nova Scotia Crown Land – December 3, 2018

## Background

The “Independent Review of Forest Practices in Nova Scotia”, referred to as the Forestry Review, ([https://novascotia.ca/natr/forestry/Forest\\_Review/](https://novascotia.ca/natr/forestry/Forest_Review/)) recommends Implementing the “Triad” approach to Forest Management. The three legs of this “Triad” include Protected areas, High Production Forest areas and an Ecologically based Matrix (Recommendation 4, Page 61 of the Forestry Review). The Review recommends that the area managed in the “Matrix” portion of the Landscape focus on multi-aged forest and reduced clearcutting. It also recommends increasing the amount of retention above the requirements for Legacy Tree Clumps as mandated under the Wildlife Habitat & Watercourse Protection regulations (WH&WP). Additionally, the Forestry Review recommends prescribing “Irregular Shelterwoods” and other changes, as part of an amended Forest Management Guide that will form the basis for managing the “Matrix” (<https://novascotia.ca/natr/forestry/programs/timberman/pdf/FMG.pdf>).

The pertinent Forestry Review recommendation are No. 3, 4, 8, 9, 10, 12, 14, 15 21, 22 & 26 on pages 61-66.

## Introduction

To implement these recommendations, it is proposed that a two-phase approach be used. A comprehensive revision of the existing Forest Management Guide, to incorporate new treatments such as “Irregular Shelterwoods”, will require a longer-term effort. Time is required to incorporate these new prescriptions into the existing Forest Management Guide framework and to make the changes required in the data collection and summary tools used to produce and evaluate Forest Harvest Plans. While this work is being conducted, an Interim Retention Guide is being introduced, in the short-term, to address recommendations to increase retention in situations where the Forest Management Guide currently prescribes Clearcuts (Overstory Removals and Seed Tree Harvests). In this way, the objectives identified in the Forestry Review to increase retention and promote multi-aged and multi-species forests can be supported while waiting for the longer-term changes to the Forest Management Guide framework.

## Retention Objectives

The Forestry review Addendum 14 (pages 69-76) provides further details on the purposes of the retention recommended for Nova Scotia’s Forest.

Objectives:

1. Maintain/Enhance multi-aged structure in stands
2. Maintain/Enhance biological diversity (see the “Stand Features” section of the Biodiversity Guide <https://novascotia.ca/natr/library/forestry/reports/Biodiversity-Stewardship-Guide.pdf>).

3. Manage light and seed source for regeneration of late successional Intermediate to Tolerant Species (LIT<sup>a</sup>)
4. Maintain/Enhance stand structure and vertical diversity
5. Maintain/Enhance aesthetics
6. Maintain/Enhance growing stock of Acceptable Growing Stock (AGS)
7. Maintain/Enhance wildlife habitat (see Special Habitats section of the Biodiversity Guide)
8. Maintain nutrient sustainability and site productivity (Not recommended in Addendum 14, but a fundamental component of ecological forestry).

## Implementation

The potential to meet these objectives will vary by stand and Vegetation type, but the goal is to retain 10-30<sup>b</sup> % (by basal area) of each stand where an Overstory Removal or Seed Tree is prescribed in the current Forest Management Guide. Preference should be given to keeping LIT species that are healthy and wind firm<sup>c</sup>. Keeping LIT species with these characteristics helps to achieve objectives 1, 3, 4 & 5 by ensuring that the trees retained are of a form and have crown structure suitable to be long-lived and remain standing.

The amount of retention of these types of trees will depend on their initial frequency in a stand. In most cases, where LIT species predominate, high retention levels are already prescribed in the Forest Management Guide (80% of this area is prescribed as Selection, Commercial Thinning or Shelterwoods with 60% retention). Where LIT species exists as a smaller portion of a stand, greater retention of these species is possible and desirable over what is currently left. Where greater than 30% of the pre-treatment stock is LIT species, approximately 30% of the stand should be retained, if the stand initially contains 10-30% LIT species, approximately 20% of the stand should be retained, if less than 10 % of the stand is LIT species, approximately 10% of the stand should be retained<sup>b</sup>. In addition, all stands underlain by shallow and/or stony-phase soils should have approximately 20% stand-retention, unless higher levels are called for by the presence of more than 30% LIT species (objective #8).

As well as keeping overstory LIT species for legacy and regeneration purposes, retention should support the growing stock objective (#6) by retaining pole-sized growing stock, especially of LIT species with healthy crown-structures and slenderness-coefficients<sup>c</sup> where they occur. There are often patches of smaller growing stock occurring in canopy openings that should be retained and released, if possible, without damaging them. As well as maintaining the patches of growing stock, care should be taken to protect advanced regeneration of LIT species. These retained trees will help achieve objectives 1, 4 & 6.

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<sup>a</sup> LIT species = Eastern Hemlock, Red Spruce, White Pine, White Spruce (not on Old Field or Coastal vegetation types), Red Maple (on Tolerant hardwood vegetation types) Red Oak, Sugar Maple, Yellow Birch, White Ash. See FMG and FEC, <https://novascotia.ca/natr/forestry/veg-types/pdf/vegtypes.pdf>.

<sup>b</sup> Where conditions prohibit leaving 10% retention, special permission can be requested to reduce retention.

<sup>c</sup> Refer to McGrath, 2018, Nova Scotia's Forest Management Guide, FRR # 101

<https://novascotia.ca/natr/forestry/programs/timberman/pdf/FMG.pdf>

for guidance on tree indicators for identifying risk to wind-damage (pg. 10, H/D ratio and LCR). Retained trees will ideally have slenderness coefficients below 0.8 and live crowns ratios > 1/4, (with their lower live crown being less than ½ the height if the main canopy).

Where possible, retention will include healthy wind-firm deep rooted LIT<sup>a</sup> trees, to reduce risk to blowdown and stem breakage thereby helping to meet objectives 4 & 5.

Where wildlife trees and biodiversity features are observed, for example raptor nests, these trees should be retained (Objective #7) along with their appropriate buffers (see Biodiversity Guide, <https://novascotia.ca/natr/library/forestry/reports/Biodiversity-Stewardship-Guide.pdf>).

Uncommon components of stands, especially LIT species, should be retained to enhance biodiversity (Objective #2). Ironwood is an example of a non-LIT species that should be retained when possible. Large, old “Super Canopy” Trees are another example of an uncommon feature to leave.

Keeping “Legacy” retention over multiple rotations will support objective #8 by reducing the amount of nutrients removed from a site through harvest and post-harvest leaching. This is important in shallow and/or stony-phased soils where nutrient stores are lower.

Not all retention needs to be LIT species as other retention objectives could be met by leaving other species meeting other retention objectives. The total retention objective should be achieved by meeting as many retention objectives as possible within a priority list as shown below and in the attached decision key. These could include a combination of LIT legacy trees, growing stock, wildlife trees, biodiversity features, uncommon species and legacy tree clumps (WH&WP). The retention components will be designed by the Licensee and their effectiveness assessed based on meeting the retention objectives.

In some Vegetation Types (FEC) no LIT species will occur. In these cases, “Legacy Tree Clumps” along with other non-LIT retention features such as growing stock and uncommon species can be left.

Wherever possible, retention is to be distributed throughout the site to increase the benefits derived from the leave trees.

## Summary

- 1) Leave approximately 10-30%<sup>a</sup> stand-retention when the Forest Management Guide prescribes an Overstory Removal or Seed Tree Harvest.
- 2) Design retention consistent with the attached decision key and objectives listed on Pages 1-2.
- 3) Leave retention trees distributed through the stand wherever possible.
- 4) WH&WP legacy tree clumps are included in retention levels.
- 5) Priority for Retention.
  - a. Uncommon tree species that form a small proportion of a stand (e.g. Ironwood, LIT, large old super canopy trees)
  - b. Wildlife trees and biodiversity features (see Biodiversity Guide)
  - c. Growing stock and advanced regeneration (preferably LIT species of appropriate form)
  - d. Deep rooted overstory of wind-firm LIT trees (SM, YB, WP, RO, WA)
  - e. Shallow rooted overstory of wind-firm LIT trees (RS, EH, WS, RM)
  - f. Deep rooted non-LIT overstory (RP, JP, WB)

To help with the implementation of these guidelines the following decision key is provided:

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- Priority list** for Retention
- 1) Uncommon species
  - 2) Wildlife/Biodiversity features
  - 3) Growing stock (regen and poles of LIT Species)
  - 4) Deep rooted overstory LIT (WP, SM,YB,WA,RO)
  - 5) Shallow rooted overstory LIT (RS,EH,WS,RM)
  - 6) Deep rooted non-LIT overstory (RP,JP,WB)

