

Clearcut Definition
Frequently Asked Questions (FAQs)

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1. Criteria

1.1. Why include trees greater than 1.3 m tall?

1.1.1. Immature trees exceeding 1.3 metres tall are considered saplings (Forestry Canada, 1992). They have distinct visual and ecological impacts on harvest areas beyond what is produced by seedlings.

1.1.2. Traditionally the understory sapling component of forest stands has been ignored, and its growth potential has not been widely explored. However studies show that shade tolerant Acadian species respond well after years of understory suppression and are the source of many mature overstory trees (Freelick, 2002; Oliver & Larson, 1996). The clearcut definition draws attention to the potential of saplings.

1.1.3. Silviculture aimed at developing understory growth will encourage practices that are in keeping with the natural development processes of many Acadian forest ecosystems:

- works with shade tolerant species.
- favours longer rotations and retention of older trees, since most shade tolerant species tend to be relatively old at seed bearing maturity.
- uses intermediate partial harvests to provide light for understory growth.

Research indicates that the protection of sapling sized trees during harvesting has a significant potential to reduce future forest rotation lengths (Archibald and Arnup, 1993).

1.2. Why is minimal stocking set at 10m²/ha?

1.2.1. According to Nova Scotia growth and yield information (MacPhee and McGrath, 2006) and published stand density management diagrams (Swift et al, 2007), 10 m²/ha is the minimal amount of basal area that could be left before a stand becomes understocked.

1.2.2. 10 m²/ha represents the “C” line threshold in published stocking guides. The “C” line is the minimum stocking amount under which a stand becomes “understocked” (Hornbeck and Leak, 1992). It is approximately 15% of full stocking (Drew and Flewelling, 1979).

1.3. Why give partial credit for areas with less than 10m²/ha of basal area?

1.3.1. Even though “C” line stocking is not met with basal areas less than 10 m²/ha, these amounts of cover do have visual and ecological impact, but to a lesser degree. To create a more accurate assessment of the harvest, partial credit is given to areas with less than 10 m²/ha.

1.4. Why set “60% of the area less than minimally stocked” as the threshold for a clearcut?

1.4.1. According to Percolation Theory, the critical threshold to maintain ecological connection across an area is approximately 60% (Farina, 2000). Therefore, when less than 60% of an area is not sufficiently occupied it loses its ecological connectedness and becomes fragmented. As the area stocked goes up, the amount of edge increases and a harvest area acts less like a clearcut. When it reaches 60%, there is a better probability of flows of wildlife and other ecological processes, and the site does not act like a clearcut.

2. Assessment System

2.1. How many plots and where should they be located when monitoring from the ground?

2.1.1. Two plots per hectare should be established with a minimum of 10 plots and a maximum of 50.

2.1.2. Assessment plots should be systematically distributed throughout the site at even intervals. Care should be taken to avoid biasing the locations and to place cruise lines perpendicular to extraction trails at intervals that are different than trail spacing.

2.1.3. Assessment plots are to be placed to within 1.36 m of the edge of the harvest area. Trees in adjacent stands are included in the prism sweep if a plot lands next to the edge.

2.1.4. For detailed instructions see Appendix I

2.2. Why is the plot size a 1.36 metre radius circle?

2.2.1. A 1.36 m radius plot measures tree stocking at 2.4 m x 2.4 m spacing. 2.4 metre spacing is a standard spacing objective for immature stands in Nova Scotia. 2.4 metre spacing is projected to produce trees averaging 20 cm Diameter at breast height (Dbh) when stands have grown to full stocking.

2.3. What type of prism should be used when measuring basal area?

2.3.1. A two factor metric prism is required for measuring basal area.

3. Qualifying Trees

3.1. Are un-merchantable sized trees measured in the prism sweep?

3.1.1. Yes

3.2. Are damaged trees included?

3.2.1. Yes, if they are living, unless they are severely damaged during the harvest. The clearcut assessment determines whether a harvest retains less than a minimal amount of residual trees. The clearcut definition is not an assessment as to whether the harvest is appropriate or carried out successfully. Good forest practices are to be encouraged by a separate silviculture program.

3.3. What is severe harvesting damage?

3.3.1. Severe harvesting damage is defined as:

- more than 20% root exposure,
- or leaning more than 45 degrees,
- or more than 50% live crown damage,
- or more than 50% of the circumference of a stem's cambium is debarked.

Trees severely damaged during harvest do not count as retained stocking as their future growth is uncertain.

3.4. What tree species are counted in the assessment to determine whether a harvest is a clearcut?

3.4.1. The tree species counted are listed in Saunders (1970); excluding some hardwood species that are mainly shrubs or small trees. Excluded species are:

- Willow
- Alder
- Witch Hazel
- Pin Cherry
- Mountain Maple
- Striped Maple
- Mountain Ash
- Choke Cherry
- Shad bush
- Hawthorn
- Sumac

3.5. Are windthrown trees included?

3.5.1. Trees that are windthrown after the time of the harvest are included. The harvest site is to be assessed according to the conditions that existed immediately following harvest.

3.6. Are sprouts included?

- 3.6.1. If the sprouts were less than 1.3 m tall at the time of the harvest, they would not be included even if they are taller than 1.3 m tall at the time of the assessment. The harvest site is to be assessed according to the conditions that existed immediately following harvest.

4. Harvest Area

4.1. What is the boundary of a harvest area?

- 4.1.1. The perimeter of a harvest area is determined by the boundary of cut stumps at the outer edge of the harvest. Harvests are highly variable and may be irregular in shape and composition, including uncut projections, stream buffers, patch cuts, and strip cuts, etc..

- 4.1.2. The harvest area may be mapped to any level of detail deemed appropriate; however any enclosed area further than 25 meters from a cut stump is excluded.

4.2. When are uncut patches, strips, wildlife clumps and riparian buffers included as part of the harvest retention? – “the 25 meter rule”

- 4.2.1. Any area enclosed within a harvest that is further than 25 meters from a cut stump is excluded from the harvest area and it does not contribute to tree retention in the classification of harvest type.

- 4.2.2. If a plot lands with an area further than 25 metres from a cut stump, the plot is not included in the calculation of % minimally stocked.

5. Implementation Policy

5.1. How is the 50% clearcut rule to be enforced?

- 5.1.1. The province will develop programs and tools to encourage expanded use of ecologically based non-clearcut harvesting methods.

- 5.1.2. Good forest management is the primary goal of the new Forest strategy. Good forest practices should not be sacrificed to meet the 50% goal. Partial harvesting is not encouraged in areas where it is not appropriate. Poorly implemented partial harvesting, such as high-grading, is not encouraged to meet the 50% goal.

- 5.1.3. Programs will be developed to reduce clearcutting, and encourage good forest practices.

- 5.1.4. The province will develop tracking systems to monitor progress and gauge the success of programs.

5.2. How will clearcutting be tracked?

5.2.1. Several possibilities exist. The Province will attempt to make the collection of clearcutting information as efficient and least costly as possible. Several options are being explored including:

- remote sensing
- ground sampling
- harvest reporting
- GPS tracking

5.3. What is a “restorative” harvest?

5.3.1. A “restorative” harvest is one that results in regeneration of intermediate to tolerant long lived Acadian forest species suited to the Ecosite where they are located (Neily et al, 2011). Intermediate to tolerant shade tolerant species are defined as:

- yellow birch
- red oak
- sugar maple
- white spruce
- red spruce
- eastern hemlock
- white pine

The regeneration must be:

- established (> 30 cm in height, rooted in mineral soil), and
- free to grow (Competition Index < 80), and
- adequately stocked (>70%).

5.4. Why include an additional harvest type called “restorative”?

5.4.1. “Restorative” harvests are those that would be classified as clearcuts under the definition, but where middle to late succession vegetation types are being restored using methods such as Seed Tree or Shelterwoods. The appropriate conditions for “restorative” harvests will be defined through silviculture guides for specific forest ecosystems. “Restorative” harvests will be tracked separately from clearcuts.

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