



**Federation of Nova Scotia Woodland Owners
&
Mersey Tobeatic Research Institute
FSC Woodlot Certification Program**

WOODLOT MANAGEMENT PLAN



Prepared for
[Woodlot Owner Name]

Prepared by
[Plan Developer]

[Date of Plan]

I, the woodlot owner:

- Endorse the Principles and Criteria of the FSC and the Maritime SLIMF Standard (2008)
- Have reviewed this plan and commit to its contents
- Agree to manage the woodlands covered by this plan for a period of 10-years
- Agree, to the best of my ability, to implement the recommendations made in this plan
- Understand that this plan needs to be reviewed and revised within 5-years of signing

I, the woodlot management planner:

- Have reviewed the contents of this plan with woodlot owner
- Assure the recommendations in the plan were made to meet FSC requirements

Woodlot Owner(s)

Date

Woodlot Management Planner

Date

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1. INTRODUCTION

1.1 Landowner Information:

Name(s) []
Address: []
Telephone: []
Email: []

1.2 Management Planner Information:

Name: []
Organization/Company: []
Address: []
Contact Info: []
Describe credentials: []

1.3 Area of Woodlot:

The Property consists of: [00 ha (00 acres)] of woodland and [00 ha (00 acres)] in total.

1.4 Location of Woodlot: *fill in as much as applicable (civic #, road name, name of settlement, county)*

Property Identification Number: []

See woodlot location map in **Appendix IV**

1.5 The primary purpose of the Woodlot: []

1.6 Strategies for Meeting Management Objectives, *Table 1*

Landowner Objectives	Strategy to Implement	Target Treatment/Timing
[1. Increase amount of shade tolerant species]	[Use harvest techniques that promote natural regen of preferred species]	[Group selection in degraded hardwood stand during good seed year]

[2. Enhance wildlife habitat]	[Identify preferred species, identify best available sites, alter harvests to provide...]	[Woodcock habitat enhance by strip cutting alders for age diversity (summer)]
[3. Maximize timber value and growth in softwood]	[Follow tending schedule that matches stand silvics]	[PCT regenerated mixedwood and softwood]
[4. Harvest modest volumes for firewood and revenues]	[Prepare harvest regime of small, frequent entries]	[Use in conjunction with treatment for objective # 1]

For full listing of stand-level recommended treatments, see the recommended treatment map in **Appendix IV**. For treatment implementation timing and priority, see the 10-Year Operating plan in **Appendix V**.

1.7 Current uses for the woodlot include:

- 1. []
- 2. []
- 3. []

Forecasted uses for the woodlot include:

- 1. []
- 2. []
- 3. []

1.8 Socioeconomic Conditions:

[Please describe, to the best of your knowledge, the economic state of woodlot management, wood products sales, forest-based employment and social views surrounding the forest industry in the geographical area of the woodlot. A few lines about wood prices, stability for wood fibre demand at local mills, market trends and availability of silviculture or other forestry program funding would be applicable here.]

1.9 Commitment to Sustainable Forest Management:

Management recommendations for this woodlot were developed to meet the Principles and Criteria of the Forest Stewardship Council (FSC) of Canada’s Maritimes Standard for Small and Low Intensity Forests. This plan was designed to cover a 10-year period, with a 5-year review, but management strategies should consider an ecological timeframe of 100+ years.

Resulting management activities shall be implemented in compliance with applicable legislation, based on Nova Scotia’s Best Management Practices, and with a commitment to long-term, ecologically sustainable forest management. The primary

goal of this program is to manage forests in a way that restores, maintains or enhances conditions found in healthy Acadian Forests.

The FNSWO will provide encouragement and education to landowners to help them achieve their specific objectives, while developing strategies that consider long-term forest health. The latest understanding of forest ecosystem dynamics has been used in developing this plan. Recommendations were given to help achieve the specific objectives of the woodlot owner. However, because of the diverse factors affecting forest development, the plan writer can assume no liability for future forest conditions.

2. GENERAL PROPERTY DESCRIPTION

2.1 Ecological Landscape Classification and Positioning:

The woodlot is part of Nova Scotia's [] Ecoregion, the [] Ecodistrict(s) and [] Ecosection(s). See Ecosection Map of Woodlot in **Appendix IV**. Information from the provincial "Ecological Land Classification for Nova Scotia" pertinent to the woodlot can be found in **Appendix VI**.

2.2 Property Title:

A copy of the deed(s) to the property is attached in **Appendix I**.

2.3 Woodlot Description:

1. Forest Lands vs. Other Land Uses

[Please list number of forested stands, and number and type of non-forested areas. Please identify non-forest areas that are not being used that would provide an opportunity for afforestation projects.]

2. Species Distribution

The primary softwood species on the lot are:

[]

The primary hardwood species are:

[]

See stand information table in **Appendix IV**.

3. Age Structure and Distribution

[Please make note of the general age structure of the woodlot (i.e. mainly mature or uneven-aged, or a fair mixture of age classes, mainly young and even-aged, etc.)]
See stand information table in **Appendix IV**.

4. Current Acadian Forest Attributes

[Please note existing conditions that exhibit Acadian Forest characteristics that can be encouraged to spread over the lot, or should be protected from further degradation (i.e. shade-tolerant mature stands)

5. Wetlands/ Bogs/ Streams

[Note any watercourses or water features and their location

6. NS Soil Series and FEC Forest Soil Types Distribution, Table 2

NS Soil Series Mapping	NS FEC Forest Soil Type (ST)	Wetter ST found on lower slopes	Drier ST found on upper slopes	Stands where ST was found
Deerfield	3	4 (if applicable)	2 (if applicable)	1,2,6,13
Deerfield	9	10	8	3,4,5,7-12

7. Topographic Features

a. Slope: [note general grades, and any extreme pitches affecting operability

b. Aspect: [note general aspect, or that there are many (if hilly)

c. Elevation: [note elevation above sea level

d. Drainage: [what watershed does the land drain into, note rapid, imperfect, etc.

8. Roads, Trails, Access and Infrastructure

[Briefly describe

9. Protected Areas

[Include any areas protected by the landowner for habitat conservation, spiritual or cultural protection. Also include brief description of riparian zones. HCVF and SAR have their own sections later on.

10. High Conservation Value Forests (HCVF,) Table 3

Stand #	HCVF Characteristics	HCVF Category	Designated HCVF ?
[1]	[Old growth SM/YB in uneven-aged condition, with no evidence of past intervention (primordial forest)	[3]	[Yes or No]

	Only put stands in table that you think maybe HCVF, then check against assessment sheet.		
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Principle 9 of the FSC focuses on HCVF. This includes identification, assessment for particular values with consultation from experts, documented strategies for maintenance and enhancement, specific measures for management, and annual monitoring to assess effectiveness of conservation measures. If applicable to your woodlot, full HCVF assessment, consultation and management documents can be found in **Appendix X**.

11. Landscape Aesthetic Considerations

[How might certain forest management decisions or operations affect neighbors, local user groups, tourism, etc.?]

12. Landscape Connectivity Opportunities

[Are there any existing conservation groups or projects in the area that may be interested in working with the landowner to achieve landscape-level projects such as wildlife habitat enhancement, clean river projects, conservation easements, unique forest landscape protection, etc. Note that landowner is not obligated to participate. If not applicable or unknown, just say so.]

2.4 Property Boundary Lines

[Describe condition, type of markings, who lines may be shared with (adjacent owners) and your recommendation for keeping them clear.]

2.5 Land History

[Provide as much info as can be gathered from owner, especially: historical evidence of forest management strategies, generational passing of the land, or when and from who it was purchased, traditional uses for the land, etc.]

2.6 Challenges and Opportunities

Challenges: [Give brief list of barriers to desired landowner objectives, i.e. wants to have a maple sugar operation but has very few SM trees, and how your recommendations can aid in the overcoming the challenges]

Opportunities: [Give a brief list of outstanding characteristics the woodlot offers and opportunities these provide, i.e. excellent records of past management, good road system, regeneration capabilities of certain sites, etc.]

2.7 Significant Habitats and Species-at-Risk

Determined by:

- a) On-site observation by Forest Manager at time of plan development
[Note any observations during cruise]
- b) Discussion with landowner
[Note any historical observations made by landowner or other users]
- c) Significant Habitat and Species-at-Risk on line viewer map
[Check DNR GIS layer and quote field WC1 and Widnum]
- d) Notes from local DNR wildlife biologist
[Make note of any special management restrictions, or BMPs that should or shall be implemented on the woodlot, as described by contacting DNR, it is only necessary to contact DNR if observations have been made or if there is a designation made on the GIS layer]

If applicable to your woodlot, maps of identified habitat and species distribution features can be found in **Appendix IV**.

3. FOREST MANAGEMENT STRATEGY

This section outlines the woodlot owner's general strategy towards forest management. Many factors contribute to the selection of site-specific management techniques. The FSC Standard and the FNSWO/MTRI have identified a set of minimum forest management requirements to ensure sustainable practices are employed during management activities. The FSC Maritime Standard requires forest management regimes that maintain, enhance or restore ecological functions and values, consistent with natural succession and disturbance patterns of the Acadian Forest. To guide the landowner's strategy toward achieving this overarching goal, each heading below is followed by key points that should be included in all management activities on FSC group-certified woodlots. The landowner's individual strategies are documented below these points.

3.1 Harvesting

- Protection of wildlife, habitat, watercourses and protected areas
- Minimize risk of fire and mechanical damage area in operation

- Harvest treatments prescribed as appropriate to stand conditions, and promote rapid and healthy natural regeneration
- Harvest designed to mimic historic local patterns of natural variability of ecological structures and functions on the site and surrounding landscape, including: a mixture of tree species, ages, diameters and height distributions; stand types; successional stages; natural range of canopy closure; maintenance of standing (snags) and fallen dead wood (coarse-woody debris); and natural disturbance regime appropriate to the ecosite
- Harvesting restricted in HCVF and other protected areas
- Consider landscape impacts of the proposed harvest
- Utilize all harvested forest products to their full potential
- Utilize properly trained, competent and insured contractors
- Hire contractors and/or workers from the local area when possible
- Utilize equipment appropriate to site and prescription, time the operation to take best advantage of markets, and minimize environmental impact
- Logging debris retained and distributed to promote soil and tree productivity

[Here you add in any historical harvesting practices and their relative success, and how the landowner wishes to proceed in the future. How will harvesting techniques help to meet landowner objectives and FSC requirements?]

3.2 Silviculture

- Protect wildlife habitat, watercourses and protected areas
- Minimize risk of fire and mechanical damage area in operation
- Silviculture treatments prescribed as appropriate to stand conditions, and promote growth of Acadian forest species
- Natural diversity and distribution of species and structures maintained
- Promptly regenerate harvested sites with appropriate species for site
- Limit herbicide use to control competing vegetation (see 3.7)

[Same type of info as in harvesting]

3.3 Protected Areas

- Protected areas will be established on sites containing species-at-risk, significant habitat, watercourses, wetlands, identified heritage/ cultural sites as required by applicable legislation
- Ecologically unique sites (HCVF) or features within a defined woodlot must be maintained or enhanced for biodiversity
- Cultural, historical, archaeological, or other special features protected (see 2.7)

[Make a quick list of protected areas, their reason for protection, their mapped location, and safeguards to protect them from potential impacts of forest management]

3.4 Wildlife Management

- Maintain features used by wildlife during management activities, main tree features to consider: mast-producers, berry-producers, fruit-bearers, shrubs, large-diameter snags, under-represented species
- Maintain or develop a mixture of age classes and successional stages
- Protect watercourses, riparian zones, wetlands, vernal pools, identified critical habitats (deer wintering yards, raptor nest sites, large cavity trees, old-growth)
- Adjust management activities to promote habitat for identified resident species

[Note particular wildlife species that require habitat protection/enhancement, or wildlife species/habitats the landowner wishes to promote, and how that will be done. If not applicable, keep it simple]

3.5 Access for Recreation

- Establishing and maintaining suitable access is paramount to woodlot management and recreation
- Recreational features should be protected during operations
- Multiple benefits from the forest for present and future use shall be maintained

[Note any existing recreational uses for the property, either by the landowner or by wanted/unwanted persons of the public. Also mention any existing or planned recreational agreements in place on the lot.]

3.6 Non-Timber Forest Products

- Consider and evaluate timber vs. non-timber opportunities in potential stands
- Ensure sustainability of non-timber forest products management

- Be aware of and follow applicable legislation and BMPs during harvesting

[Make note of current uses of NTFPs, or any potential that the woodlot may offer, and how culturing the potential NTFP could optimize woodlot value, while reducing pressure on timber supplies. Remember that naturally cultivated and/or planted Xmas tree lots are not certifiable as they are considered an agriculture crop and should be listed in section 2.3.1]

3.7 Ecological Goods and Services

- Forests offer great services to society by providing natural air filters, water resources, erosion controls, recreation opportunities and hunting/fishing
- The landowner must consider existing and potential services their woodlot provides, and implement measures to maintain or enhance these services by considering impacts of forest management

[Make note of particularly valuable riparian zones, important forested areas that provide non-timber values, as well as opportunities to increase these services (i.e. planting unused old fields for carbon sequestration projects)]

3.8 Plantation Management

- No more than 10% of the forested land base may be plantation
- Plantations are forest stands where high intensity silviculture is used explicitly for timber production, leaving few features of a natural forest
- This non-natural succession results in limitations of: tree species diversity, stand structure, early successional habitats, mature trees and coarse woody debris
- Planted stands that exhibit a diversity of species and structure, and are not being managed intensively for rapid fibre growth are not considered plantations
- Areas recommended for planting must be sampled for FEC and have appropriate species recommended for the ecotype/ vegetation type, as listed on the FEC Vegetation Type management interpretations

Table 4 documents areas that currently planted or being treated with intensive silviculture, or recommended to be:

Stand #	Area Planted (ha)	% Total Area	Species Composition	Year Planted	FSC Plantation?
1	10	5%	RS06BF02YB02	2001	NO
7	3	1.5%	NS09IH01	1997	YES

11	7	3.5%	RS04EH04WP02	2015*	NO
[if no]	[Planted area]	[Fill in as]	[N/A in top row]	[]	[]

- Landowner objectives for areas classified as plantations are as follows:

3.9 Integrated Pest Management

- Early detection of insect, disease or pest problems is crucial to effective control
- Use harvest treatments that promote natural regeneration and discourage unwanted tree species, thereby reducing need for competition control
- Use manual competition control treatments where possible
- Herbicide use will be limited as much as possible and used prudently, with a commitment from the landowner to attain pesticide-free management, with a specific target date, and interim targets and objectives documented if applicable
- Forest pests will be controlled through sanitation harvesting where possible
- The landowner has committed to pesticide-free forest management and the timely target date to eliminate the use of chemical herbicides:

[Document date (must be within a timeframe that is silviculturally responsible in order to manage current cutblock regeneration or plantation weeding, although cannot exceed 2-years from signing of WMP:document rationale) or make statement that owner is already practicing herbicide-free silviculture and plans to continue this regime.]

3.10 FEC Forest Management Guidelines Table

The following table displays ecological data collected from your woodlot, and subsequently classified by using the Forest Ecosystem Classification (FEC) system for Nova Scotia as designed by the Ecosystem Management Group at Nova Scotia Department of Natural Resources. Classifying ecosystems allows forest managers to speak a common language when describing forest conditions, and helps them to consider all components that may affect the outcome of recommended treatments. Understanding the natural disturbance regime of a site helps to ensure appropriate long-term harvesting strategies are applied. With this FEC framework in place, treatment recommendations should be more appropriate on a stand-by –stand basis, and the results should be more consistent and predictable. In the following table, all similar stands within the woodlot will be grouped together. FEC vegetation type data sheets can be found in **Appendix VII**.

Following is glossary of FEC terminology used in the table:

(VT)- FEC vegetation type, classified as per NS VT Guide

(ST)- FEC soil type, classified as per “Forest Soil Types of NS” Guide

(ET)- FEC ecosite, classified as per NS ET Guide

(LC)- Land Capability: ability of that site to grow wood, expressed as a volume growth, per area in one year, in this case, cubic metres/hectare/year

Soil Hazards: These are ratings of medium-high to high hazard potentials for certain soil types found on the woodlot. Following is a list of hazard categories:

(CP) Compaction Hazard- especially in wet and/or fine textured soils

(RT) Rutting Hazard- especially in wet and/or fine textured soils with high organics

(E1) Erosion Hazard on slopes <10% and (E2) on slopes >10%

(FH) Frost Heave Hazard- as it affects planted or natural regeneration rooting

(WT) Windthrow Hazard- as influenced by potential rooting depth

Table 5 - FEC Forest Management Guidelines Table

Stand #	VT	ST	ET	LC (m ³ /ha/year)	MH-VH Soil Hazards

4. STEWARDSHIP PLAN

4.1 Methodology to determine volume:

- Volumes reported in this plan are rough estimates only. The sampling intensity was low and designed only to provide a qualitative description of wood volumes. A more intense cruise would be required to provide accurate volume estimates
- Each delineated stand on the defined woodlot was sampled at a rate of

Stand Area (ha)	# Cruise Points/ha
< 3 ha	1
3-10 ha	1/2
>10 ha	1/4

4.2 Annual Allowable Cut (AAC)

- To be expressed as calculated growth capability of woodlot ($m^3/\text{hectare}/\text{year}$) multiplied by productive area of woodlot (hectares/woodlot) = $m^3/\text{year}/\text{woodlot}$
- Historical harvesting regimes should be factored into harvest rates
- Recommended harvesting and/or merchantable silviculture treatments should not exceed AAC for any given year, except in situations where over-mature, fire prone or disease/insect infested stand conditions occur
- AAC shall not be exceeded over the 10-year course of the WMP
- Reductions in AAC must be made to reflect the percentage of operable area within stands recommended for harvest
- Von Mantel's formula for AAC is : $Y_a = 2 \times G_a / R$
- $Y_a = \text{AAC}$ $G_a = \text{growing stock or total forest inventory (cords)}$
- $R = \text{Rotation age in years (80)}$ $Y_a = 2 \times G_a / 80 =$
- 5% Reduction Factor = $Y_a - (Y_a * 0.05) = \text{cords/year}$
- Total Allowable Harvest over a **10 year period = cords**

[]

4.3 Operational Planning

- Woodlot management activities will be carried out in a manner that minimizes environmental impact by complying with applicable legislation, using BMPs, and planning the timing of activities to correspond with appropriate seasons

- Landowner responsible for ensuring boundary lines are clearly marked, objectives of activity are known by workers, workers are competent, FNSWO is contacted when harvesting, silviculture or road building activities are active
- Deforestation and conversion to non-forest use within the defined woodlot shall be minimized through careful planning of forest roads, landings, etc.
- Local contractors, forest workers and processing facilities will be used as much as possible to contribute to the well-being of the local community
- Any recommended treatments that may have major impacts on affected parties shall be documented in this section and require the landowner to communicate with potentially affected parties about the upcoming treatment- see information sheet provided by the Federation in the Pre-Entry Information Package

4.4 Financial Considerations

- When implemented, this WMP will support some of the requirements of the Intergenerational Tax Transfer (ITT)
- Good records of revenues and expenses from the woodlot are required to be eligible for the ITT, and to conform to the CSA Z804 standard
- Proper planning can balance revenues and expenses

5. STAND INFORMATION

Stand information is displayed as a table in **Appendix IV**. Ecological management notes and guidelines are displayed in a table in section **3.10**.

The management planner may add additional stand descriptions here if requested by the landowner, or if extra information needs to be documented about stand conditions or treatment notes. Use a format that is comfortable for you.

6. WOODLOT MONITORING

Throughout the term of the plan, the key to ensuring the success of the forest management implementation is regular monitoring of the property. Treatment areas and general forest conditions should be monitored periodically. Triggers for unscheduled inspections (wind

storms, fire, neighboring activities, etc.), and other important monitoring instructions are listed for each heading. It is extremely important that monitoring activities are documented for future reference. Under each of the following headings, it is clearly stated who will be responsible for monitoring and how often they will conduct inspections.

Throughout the course of the certification program, staff or representatives from either FNSWO or MTRI will inspect woodlots for conformance to the FSC Maritime SLIMF standard.

Landowner records of woodlot monitoring aid in this process.

6.1 Harvest Monitoring

- First day of contractor on site: ensure objectives are clear, boundary lines are marked and workers are competent
- During operation: ensure objectives being met, workers within boundaries, harvested wood properly utilized, environmental impacts minimized
- Completion of harvest: infrastructure in good repair, all wood utilized, environmental impact was minimized
- Evaluate whether objectives of harvest were achieved

[Harvest monitoring will be conducted by _____ during and after harvesting]

6.2 Silviculture Monitoring

- First day of contractor on site: ensure objectives are clear, boundary lines are marked and workers are competent
- During operation: ensure objectives being met, workers within boundaries, environmental impacts minimized
- Completion of treatment: infrastructure in good repair, all areas treated, environmental impact was minimized
- Evaluate whether objectives of treatment were achieved

[Silviculture monitoring will be conducted by _____ during and after treatments]

6.3 Forest Condition Monitoring

- High attention given to stands prone to wind throw, fire, disease or insect infestation, or other possible damage
- Report serious disease or insect infestations to NSDNR (see emergency #s)

- Report significant changes in stand conditions to planner, alter WMP to reflect current stand conditions and required management needs

[Forest condition monitoring will be conducted by _____ at a frequency of _____]

6.4 Environmental Impact Monitoring

- Road building, large clear-cutting operations, etc. on adjacent land
- High forest fire index during hot, dry times
- Extreme weather: high winds, heavy snow-loading, lightning storms, etc.

[Impact monitoring will be conducted by _____ when triggered by examples such as those provided above]

6.5 Plantation Monitoring

- Plantations must be monitored for competition and health
- Efficacy of silviculture treatments must be monitored and documented
- Negative impacts of the plantation on soil fertility and water quality should be documented, along with strategies to improve

[Plantation monitoring will be conducted by _____ at a frequency of _____]

6.6 Monitoring Results and Records

- When the landowner is the person responsible for monitoring exercises, the observations are recorded in the 10-year woodlot management journal provided by the Federation or MTRI
- When a representative from the Federation or MTRI conducts a scheduled inspection of the woodlot, the journal will be used to verify that regular monitoring of the woodlot has been conducted
- The first scheduled inspection of the woodlot by the Federation or MTRI will be on [_____]

7. NOVA SCOTIA'S WILDLIFE HABITAT AND WATERCOURSES PROTECTION REGULATIONS

Provincial regulations must be followed when forest management activities take place on any woodland in Nova Scotia. There are three main requirements that must be followed when harvesting forest land:

- 1) Leaving buffer strips along watercourses: when harvesting near watercourses, a special management zone (SMZ) is required. Watercourses that are 50-cm (20") or more in width require a 20-metre (66') SMZ along each edge with the following requirements:
 - SMZ width will be increased by 1-metre (3') for every 2% of slope over a 20% average slope
 - No machine allowed within 7-metres (23') of the watercourse
 - Partial harvesting is allowed within the SMZ: must retain a minimum of 20-m²/ha of basal area, and not create a gap larger than 15-metres (50') in the canopy

Watercourses that are less than 50-cm (20") in width also require a 20-metre (66') SMZ along each edge with the following requirements:

- No machine allowed within 5-metres (17') of the watercourse
 - Merchantable trees may be harvested
 - Ensure understory vegetation and non-commercial trees within 20-metre SMZ of are retained to their fullest extent
- 2) Leaving Legacy Trees/ Wildlife Clumps: these specifications are required when harvesting any area larger than 3 hectares (7.4 acres):
 - Leave 10 living trees per hectare (2.5-acres) in a clump of representative trees with a minimum of 30-trees for every clump
 - Clumps shall be at least 20-metres (66'), but no more than 200-metres (660') from the edge of a cut, or from each other, where there is more than one clump
 - No harvesting allowed within clumps

- 3) Leaving Coarse Woody Debris: all harvest sites will retain standing dead trees, fallen trees and large branches, as well as rotting logs on the harvested site, similar to naturally occurring patterns, when it is safe and possible.

Persons cutting in woodlots should obtain and read a copy of these guidelines from the Department of Natural Resources website: <http://www.gov.ns.ca/natr/forestry/strategy/>