



Silviculture

Strategic Plan for Yukon Forests

**Yukon**

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Energy, Mines and Resources
Forest Management Branch

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Table of contents

Introduction	1
Vision	1
Background	2
Silviculture strategic plan	4
Goal 1: Develop and deliver an operational silviculture program	5
Goal 2: Develop a capable silviculture industry	6
Goal 3: Meet <i>Forest Resources Act</i> responsibilities	7
Goal 4: Develop a transparent system for spending funds, conducting reforestation and reporting achievements	8
Elijah Smith Forest Renewal Fund	9
Plan review	9
Glossary	10



Introduction

The requirement to reforest areas harvested on public land is a standard forest management practice in all provincial and territorial jurisdictions across Canada. This silviculture strategic plan provides guidance for the implementation of a silviculture program in Yukon under the *Forest Resources Act* (2011). It also provides vision and direction for reforestation and related activities in Yukon.

Vision

Develop a silviculture program for Yukon that efficiently delivers reforestation treatments to support sustainable forest management.

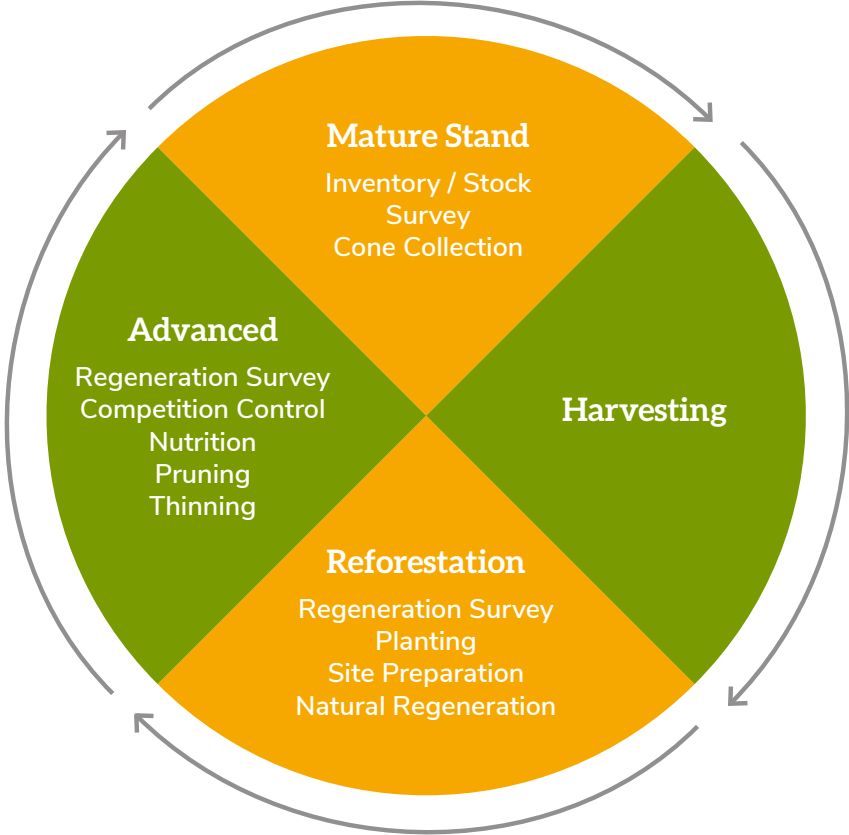
Background

Silviculture

Silviculture is the practice of controlling the establishment, growth, composition, health and quality of forests to meet diverse needs and values. Common silviculture activities include site preparation for natural seeding/planting, planting trees and conducting silviculture surveys to assess stocking (composition, density and distribution of trees).

Reforestation: The re-establishment of forest resources by natural or artificial means, such as planting of seedlings and seeding.

In this strategic plan, silviculture refers to the activities needed to undertake reforestation in order to meet silviculture stocking standards. Flexibility exists to tailor the application of stocking standards to different needs and objectives. This is addressed through lower level plans such as site plans.





The *Forest Resources Act* creates the legal framework under Part 6 of the *Forest Resources Regulation* to approve silviculture standards, guidelines and compliance requirements for any reforestation activities carried out on public land.

The silviculture practices, standards and guidelines applied to a harvest unit directly influence the short and long term environmental and socio-economic values. Silviculture is required to manage forests sustainably and is a factor considered in the establishment of timber harvest levels.

Historical perspective

Yukon's reforestation activities pre-date the *Forest Resources Act*.

Many of these activities are evident in southeast Yukon and serve to provide an historical perspective on the challenges and successes of implementing silviculture in the north. Much of this knowledge has contributed to the development of the post *Forest Resources Act* silviculture program.

Silviculture program delivery

Given that much of the expertise and capacity to deliver silviculture currently resides with the Government of Yukon, reforestation activities will primarily be initiated by the Forest Management Branch staff and delivered by building contracting capacity with First Nations and the forest industry. As is common in other jurisdictions throughout Canada, there are opportunities for the forest industry to take on responsibility for reforestation and also diversify reforestation delivery opportunities available to silviculture contractors. As capacity and expertise within the Yukon forest industry evolves this may further stimulate the development of a silviculture industry. Silviculture activities, whether carried out by the Government of Yukon or industry, will be consistent with the values and objectives stated in forestry plans. Multiple levels of forestry planning, namely, forest resources management plans and timber harvest plans, consider the views and interests of affected First Nations.

Silviculture strategic plan

Guiding Principles

These guiding principles will determine the way in which the goals and objectives of the silviculture program are delivered.

- Engaging with First Nations and the forest industry is vital to creating a mutually beneficial silviculture program;
- reforestation treatments must benefit the sustainable supply of timber and non-timber values;
- reforestation treatments use ecologically appropriate silviculture systems and reforestation practices;
- adaptive management using science-based knowledge and innovative practice drives the evolution of the silviculture program; and
- the resources used by the silviculture program are managed effectively and transparently.

Key Directions

The key directions of the silviculture strategic plan are outlined in the goals and objectives. These goals and objectives are the foundation for delivery of Yukon's silviculture program.





Goal 1: Develop and deliver an operational silviculture program

This goal's key purpose is to enable the delivery of silviculture activities that meet the identified objectives of approved forest resources management plans and related implementation agreements, timber harvest plans, and site plans. These activities could include surveys, space preparation, planting and maintenance of regenerated areas.

Objective 1. Establish the core components of the silviculture program

In order to carry out the silviculture program, the following core components are essential:

- Developing standards and guidelines for:
 - establishing the type and density of reforested areas (stocking standards);
 - describing the methodology to assess the success of reforestation activities (silviculture surveys);
 - collecting tree seed for reforestation; and
 - preparing harvested areas for reforestation.
- Adopting and maintaining a data management system to track silviculture activities and costs.
- Acquiring and maintaining a seed supply for reforestation.
- Using adaptive management principles for monitoring and updating standards and guidelines.

Objective 2. Implement the silviculture program

With the program core components in place, implementation can proceed with the creation of silviculture treatment plans that identify and schedule reforestation treatments.

Approving silviculture treatment plans fulfills the requirement to implement reforestation treatments. This is the final planning step to enable silviculture activities to be carried out within the scope of the approved plans, standards and guidelines.



Goal 2: Develop a capable silviculture industry

This goal's key purpose is to enable a workforce capable of delivering silviculture treatments and to build capacity for Yukoners to take advantage of new contracting opportunities. This requires the creation of a trained and competitive work force that can effectively deliver reforestation activities

Objective 1. Create training opportunities in silviculture

Initiation of silviculture education and workshops for First Nations and prospective members of the silviculture industry to provide the training required to carry out reforestation activities.

Objective 2. Create capacity building opportunities in silviculture

Foster and expand the working relationship between Government of Yukon, First Nations and the forest industry to provide the building blocks for:

- the successful establishment of competitive silviculture businesses; and
- increasing capacity through a range of contracting opportunities.

First Nations have a unique opportunity through Chapter 17 of their Final Agreements to either participate in or directly undertake silviculture contracting opportunities within their traditional territories.

Yukon's forest legislation permits the forest industry to take on additional reforestation responsibilities. As the forest industry builds capacity, this could further contribute to the diversification of the silviculture contracting sector.

Regular engagement between First Nations, the forest industry and the Government of Yukon will help create opportunities to build a healthy and stable silviculture contracting community.



Goal 3: Meet *Forest Resources Act* responsibilities

This goal's key purpose is to ensure that the silviculture program addresses the responsibilities outlined in the *Forest Resources Act* by integrating silviculture into forest management planning, licencing agreements and on-the-ground forest practices.

Objective 1. Integrate silviculture into forest management planning

Silviculture activities are an integral part of all levels of forest management planning (refer to Figure 1). There is a direct link between the approved objectives in all levels of forest plans and the silvicultural steps being taken to achieve them. Considering silviculture practices in the preparation of forest plans is important to successfully achieving forest management planning goals.

Feedback from forest plans is an essential part of adaptively managing and improving the silviculture guidelines, standards and practices used in Yukon forests.

Achieving forest planning goals through reforestation actions is compatible with Yukon initiatives under the *Biomass Energy Strategy* (2016) and the *Climate Change Action Plan* (2009).

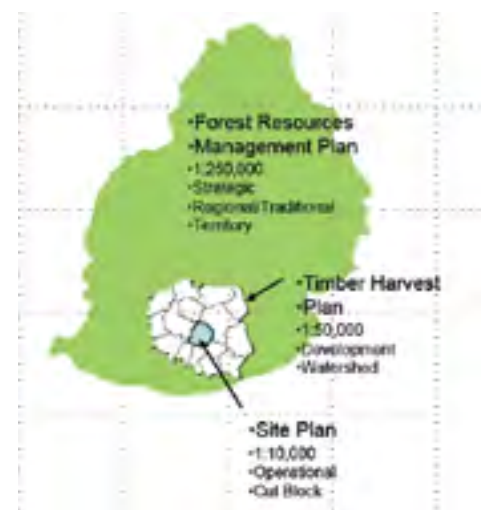


Figure 1. Forest planning hierarchy under the *Forest Resources Act* for forest resources management plans, timber harvest plans and site plans

Objective 2. Integrate silviculture practices into forest management processes

Silviculture is a vital link in the chain of forest management processes. Licencing agreements that build in harvesting strategies and techniques lay the groundwork for efficient delivery of reforestation treatments, improve reforestation delivery costs and reduce the time it takes to reforest harvested areas. In the future, as new licencing agreements are entered into, consideration to integrating silviculture responsibilities will strengthen management of Yukon's forests.

After harvesting, silviculture survey information provides the data for updating the forest inventory which in turn is used in establishing the rates of timber harvesting. Mapping of reforested areas provides valuable data for analysis in geographic information systems (GIS), a tool that helps inform forest management decisions. This information, along with local priorities and other environmental factors, is considered in timber supply analyses.



Goal 4: Develop a transparent system for allocating funds, conducting reforestation treatments and reporting achievements

This goal's key purpose is to ensure that silviculture resources are managed transparently, by developing multi-year silviculture priorities, reporting work activities and allocating program resources.

Objective 1. Develop multi-year silviculture priorities

Multi-year silviculture priorities identify the funding priorities for reforestation of harvested areas. They will be developed with input from First Nations and the forest industry and used to coordinate funding of reforestation activities.

Objective 2. Report on silviculture activities

Public reporting of silviculture treatment activity, achievements and upcoming opportunities informs:

- contractors for their business planning and resources allocation;
- First Nations regarding treatments completed in their traditional territories; and
- the public of reforestation activities being carried out for sustainable forest management.

Periodic reports will be prepared to build transparency in program delivery.

Objective 3. Silviculture resources allocation

Silviculture resources allocations are primarily guided by commitments and objectives in approved plans, the amount of harvesting within a plan area, as well as by environmental and socio-economic objectives.

Silviculture activities can be a significant factor contributing to sustainable forest management and are considered in the analysis of timber supply. Understanding the contributions that reforestation treatments make to forest resources management planning areas or annual limit regions helps determine silviculture priorities.

Elijah Smith Forest Renewal Fund

Reforestation fees collected from commercial harvesting under the *Forest Resources Act* go directly into the Elijah Smith Forest Renewal Fund. This does not include fuelwood harvesting. Currently, the *Forest Resources Regulation* prescribes fees for reforestation or the option for the average of three years of silviculture costs per cubic metre to be charged for some commercial harvest of timber. Specifically, the *Forest Resources Act* directs the funds to be spent on research projects and “activities related to silviculture.” The key funding source to carry out the silviculture strategic plan will be under the Elijah Smith Forest Renewal Fund.

Regular review of identified multi-year silviculture priorities with the input of First Nations and the forest industry is used to coordinate the funds needed from the fund to carry out silviculture activities under this strategic plan.

Plan review

The silviculture strategic plan should be reviewed and updated as needed to determine if the overall goals and objectives of the plan are being met, and to accommodate new developments in forest management.

Glossary

Annual Limit Regions – regions set out in Schedule 1 of the *Forest Resources Regulation*. The forest legislation sets a maximum timber harvest level for these regions.

Adaptive Management – a dynamic approach to forest management in which the effects of treatments and decisions are continually monitored and used, along with research results, to modify management practices on a continuing basis to ensure that management objectives are being met.

Elijah Smith Forest Renewal Fund – a fund as set out in Part 4, Section 35 of the *Forest Resources Act*.

Forest Resources – all flora in a wild state and for greater certainty, includes mushrooms.

Forest Resources Management Plan – a plan prepared as set out in Part 2 of the *Forest Resources Act*. This level of planning is a strategic, overarching, landscape level plan which:

- provides broad direction on where and why forest resource management activities should take place;
- identifies forest resources values and sensitive areas;
- identifies resource zones;
- establishes management intent; and
- extends over large land bases often greater than 1,000,000 hectares in size.

Reforestation – the re-establishment of forest resources by natural or artificial means, such as planting of seedlings and seeding.

Silviculture – the practice of controlling the establishment, growth, composition, health and quality of forests to meet diverse needs and values.

Silviculture Surveys – surveys that are conducted on harvested areas in Yukon to assess quantity and quality of regeneration and assess whether the current stocking meets stocking standards, management objectives and other approved plans.

Silviculture Treatment Plan – a plan that describes reforestation treatments for the area specified in the plan, to meet the silviculture and forest resources health objectives set out in the plan, as per section 57 of the *Forest Resources Regulation*.

Site Plan – a plan prepared as set out in Part 2, Division 4 of the *Forest Resources Regulation*. These plans are focused on the operational and technical aspects of harvesting at the site level and:

- identify specific areas and attributes of the areas proposed for harvesting;
- identify stand-level management activities, methods and standards for harvesting to ensure the protection of the forest resource values on that harvest area; and
- can also include steps to be undertaken to reforest the harvest area.

Stocking – a measure of the composition, distribution and density of living trees in an area.

Sustainable Forest Management – the management of forests that maintains and can enhance the long-term health of a forest ecosystem. It balances the three core principles of environmental, social and economic objectives for the benefit of present and future generations.

Timber – living or dead trees, whether standing or fallen.

Timber Harvesting – the cutting and removal of timber.

Timber Harvest Plan – a plan prepared as set out in Part 2, Division 2 of the *Forest Resources Regulation*. Timber harvest plans are tactical and answer the ‘where and how’ of timber removal. They include:

- descriptions of forest resources;
- objectives for timber harvesting;
- locations that are suitable for timber harvesting; and,
- location of existing and proposed roads that are necessary to facilitate timber harvesting, and related construction and management strategies.



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