

Annual Report

2023



Project
Forest

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Land Acknowledgement

| Traditional Territories



Members of Cumberland House Cree Nation (CHCN) at the CHCN Food and Medicine Forest

Project Forest acknowledges that our work is conducted on both Treaty and non-Treaty lands. These lands are the traditional territories of First Nations and Indigenous Peoples. We recognize that our work is intertwined with the deep and diverse histories of Indigenous Peoples. We are grateful for the opportunity to work in these territories and are committed to the recognition and respect of those who live or have lived, travelled, and gathered on these lands for time immemorial.

About Us

| Mission and Values

Rewilding Canada, one forest at a time.

Project Forest is a non-profit organization working in partnership with conservation groups, Indigenous communities and Canadian businesses to make a positive environmental and social impact in our communities through planting forests. The forests we plant clean the air and water, increase biodiversity and contribute to the overall health and well-being of our communities.



Our work is rooted in our values.

Responsibility

We believe it is our responsibility to use our skills, knowledge, and experience to bring about positive change in the world.

Reciprocity

We recognize that we have benefited from the earth's resources and are committed to giving back through careful and thoughtful solutions.

Humility

We are grateful for the opportunity to learn from nature, to contribute to improving our environment, and to make a positive impact in people's lives.

Transparency

We document, monitor, and share our processes and findings with partners and the public—every step of the way, on every project.

Community

We create spaces where people can connect with nature, and each other. We respect every community we are invited into, and work together to make positive change.

Overview

| Letter from our Executive Director



Alberta Motor Association at Project Forest Golden Ranches

People are at the heart of our forests.

“Forests Suck” was the tagline that launched our non-profit in October 2020. And, it’s true, forests do suck a lot of carbon from our atmosphere and play a key role in combating climate change. But, over the last three years as Executive Director at Project Forest, I have come to realize that our story is about much more than just carbon.

While carbon sequestration remains a significant benefit of planting a forest, the true heart of our mission lies in the transformational impacts on the lives of the people who call these lands home. It is the well-being and positive changes in the communities where we work that now drive our rewilding efforts, ensuring they are sustainable and beneficial for generations to come.

We are grateful to the Project Forest community of land and funding partners for trusting us to plant, grow, and maintain the forests of the future. Your continued commitment to our mission to rewild Canada, one forest at a time, is invaluable, and together, we are creating a lasting legacy on the land.

Mike Toffan
Project Forest Founder & Executive Director

Overview

| 2020 - 2023 Cumulative Review

This is what we've accomplished in three short years — and we're still growing.

8

forests
planted

26

species
planted

201.5

hectares
rewilded

404,755

seedlings planted



191,221

metric tonnes of CO₂ projected to be
removed from the air over 150 years*

*Estimated lifetime of the forest

Overview

| 2020 - 2023 Cumulative Review



400,000 + seedlings planted since 2020.

In our 2021, 2022, and 2023 planting seasons, Project Forest planted a total of eight forests on 201.5 hectares of land in Alberta and Saskatchewan. To accomplish this, we brought together Indigenous communities, conservation groups, industrial land partners, and 37 Canadian businesses and funding agencies to plant 404,755 seedlings and 26 different species. We project that the forests we've planted to date will remove 191,221 of CO₂ from the air over their lifetimes.

We restore forests using an approach that emphasizes multiple values, including increasing nature and biodiversity, capturing and storing carbon, improving human well-being, promoting Indigenous land stewardship, and contributing to the green economy. We plant the right tree in the right place for the right reason to create forests that provide a waterfall of critical ecosystem services and co-benefits.

Overview

| 2023 Year in Review

3

new forests
planted

20

species
planted

73.5

hectares rewilded

158,025

seedlings planted



43,168

metric tonnes of CO2 projected to be
removed from the air over 150 years*

*Estimated lifetime of the forest

150,000 + seedlings planted in 2023.

In our 2023 planting season, Project Forest planted a total of three new forests with two secondary planting events at the Cumberland House Cree Nation Food and Medicine Forest and the Swan River First Nation Ecological Reconciliation Project. A total of 20 different species were planted at our project sites and 73.5 hectares rewilded. To accomplish this, we brought together Indigenous communities, conservation groups, industrial land partners, and 37 Canadian businesses and funding agencies to plant 158,025 seedlings.

Overview

| United Nations Sustainability Development Goals

Goals to Transform Our World

Planting new forests is critically important in addressing the challenges of our time, particularly when aligned with the United Nations Sustainable Development Goals (UN SDGs). As our communities grapple with climate change and biodiversity loss, forests emerge as pivotal solutions that intersect with multiple UN SDGs including, combating climate change and preserving biodiversity, fostering economic development, ensuring food security, promoting clean water access, and advancing social equity. Aligning the impacts of our forests with the UN SDGs is essential for communicating to stakeholders our dedication to sustainability, transparency, and the measurement of progress over time.

In our 2023 Annual Report, we have linked the outcomes of our rewilding projects with relevant UN SDG targets and indicators, as well as aligned them with corresponding Environment, Social, and Governance goals. This comprehensive approach ensures that our partners have readily accessible information for corporate sustainability reporting, simplifying the process and enhancing transparency.



Purpose & Positive Impact

The following UN SDGs are impacted by the 2023 Project Forest rewilding projects:

Purpose



Positive Impact



Purpose

| UN SDG 15 - Life on Land

Goal: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

Matching ESG Goals:

- Providing clean air and water
- Improving biodiversity
- Re-establishing traditional landscapes



Project Forest is making a positive impact through restoring degraded land to increase forest cover, enhance biodiversity, and promote the sustainable use of terrestrial ecosystems.

Indicator 15.1.1: Forest area as a proportion of total land area

The majority of our project sites are located in regions impacted by agricultural expansion. These areas encompass lands of significant conservation importance where, through planting a forest, we are able to make tangible contributions to their ecological restoration.

Annual Monitoring Surveys

Surveys are conducted across all project sites to assess the overall health of the forest through monitoring tree growth and mortality, observing volunteer vegetation, and identifying site maintenance requirements. Intensive on the ground surveys occur for the first five growing seasons at each project location. The survey data collected is used in the preparation of our Annual Project Reports.

All surveys are completed by Regulated Forestry Professionals (RFP) or under the direct supervision of an RFP. The parameters for success are dependent on the site conditions and defined at the start of each project.

In Fall 2023, we surveyed seven of our eight project locations:

- [Golden Ranches](#)
- [Swan River First Nation Ecological Reconciliation Project](#)
- [Strathcona Forest](#)
- [Camp Creek](#)

Land degradation “is a negative trend in land condition, caused by direct or indirect human-induced processes including anthropogenic climate change, expressed as long-term reduction or loss of at least one of the following: biological productivity, ecological integrity or value to humans” (IPCC, 2019).

7

Surveys Completed

504

Plots Sampled

Purpose

| UN SDG 15 - Life on Land



- [Cumberland House Cree Nation Food and Medicine Forest](#)
- [AMA Centennial Forest - Benoit](#)
- [AMA Centennial Forest - Flatbush](#)
- [Nutrien Forest](#) (to be surveyed in Fall 2024)



Afforestation Survey at Project Forest Golden Ranches

Across all sites surveyed in 2023 we sampled a total of 504 plots and found an average total stocking rate (SR + NSR-LIG) of 79.4% (Figure 1). The data from the surveys is recorded in an Afforestation Survey Report for each project location, this report is included in each individual annual project report. The data from all surveyed project sites has been compiled into the Afforestation Survey Cover Page (Appendix A - Afforestation Survey).

Figure 1: Acceptable Stocking Summary

Type of Plot	# of Plots	% of Plots
Total Sufficiently Restocked (SR)	228	45.2
NSR-Let It Grow (NSR-LIG) Stocking	172	34.1
Not Sufficiently Restocked (NSR)	104	20.6
Total Stocking (SR + NSR-LIG/Total # of Plots)	400	79.4

79.4%
Seedling Survival Rate

NSR-LIG is an abbreviation of “not sufficiently restocked - let it grow”. The NSR-LIG status is applied to plots where under-height trees are left to grow with the expectation that this treatment will be sufficient for them to meet the SR standard at the next annual survey.

Purpose

| UN SDG 15 - Life on Land



Indicator 15.1.2: Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type

Project Forest partners with Indigenous communities and conservation groups to plant trees and shrubs that contribute to increasing the overall forested area in Canada. By identifying non-forested land that could benefit from *afforestation*, we are enhancing the coverage of forest ecosystems, which are a critical component of terrestrial biodiversity.

We partner with landowners who can guarantee that the forest we plant today will be protected and remain forests for future generations to enjoy. Our permanence agreement ensures that we are establishing new protected areas and expanding existing ones. By converting degraded or unused land into forested areas, we increase the total area designated for conservation, which directly improves Indicator 15.1.2.

Our forests are located across the [Boreal Forest Natural Region](#) in northern and central Alberta and in the [Boreal Plain Ecozone](#) in northeastern Saskatchewan. The land is managed, and its long-term protection overseen, by our Indigenous and conservation land partners.

Afforestation “is the direct human-induced conversion of land that has not been forested for a period of at least 50 years to forested land through planting, seeding and/or the human-induced promotion of natural seed sources. annual monitoring survey” (UNFCCC, 2008).



“Project Forest’s rewilding vision is precisely aligned with Alberta Conservation Association’s restoration goals on Camp Creek and other Conservation Sites. Their thoughtful planning, attention to detail, and collaborative strengths will benefit Albertans and wildlife for generations to come.”

—**Dan Sturgess**, Biologist, Alberta Conservation Association (ACA)

We planted a total of 20 different tree, shrub, and vascular plant species across five projects in 2023. The species planted were chosen based on their appropriateness to the site and adaptability to the changing climate. By continuing to plant native and locally-adapted species, the Project Forest community is contributing to enhancing biodiversity, increasing forested area, and mitigating climate change.

20

Species Planted

Purpose

| UN SDG 15 - Life on Land



Morel mushroom harvest, Cumberland House Cree Nation Food and Medicine Forest

The data from our 2023 surveys across all project sites indicates that in addition to the seedlings we planted, our sites are seeing an increase in desirable natural vegetation (Figure 2). The presence of medicinal and culturally significant species like fireweed, horsetail, strawberry, cattail, ferns, native grasses, clover, mushrooms, and others, are an indication of natural regeneration on site. This increase in desirable vegetation is likely due to improved soil and growing conditions created through site preparation prior to planting and favourable conditions created by the emerging forest. The return of diverse herbaceous vegetation on site increases overall site biodiversity.

The presence of noxious weeds is also recorded in our annual surveys. Across all seven surveyed sites, the following noxious weeds were observed: Canada thistle, sow thistle, and common tansy. Where there is a large presence of noxious weeds within a site, it is recommended that Project Forest and the relevant land partner discuss vegetation management options. More information on the observed vegetation can be found in the individual annual project reports.

Species Planted in 2023:

White Spruce:	61,920
Okanese Poplar:	26,100
Lodgepole Pine:	25,020
Tamarack:	6,480
Black Spruce:	5,940
White Birch:	5,220
Saskatoon:	4,030
Jack Pine:	3,600
Bebbs Willow:	3,600
Buffaloberry:	2,960
Red Osier Dogwood:	2,760
Raspberry:	2,500
Dewberry:	2,180
Bog Cranberry:	2,160
Silver Buffaloberry:	1,440
Wild Strawberry:	540
American Mountain Ash:	510
Wild Rose:	480
Mountain Ash:	405
Lowbush Cranberry:	180



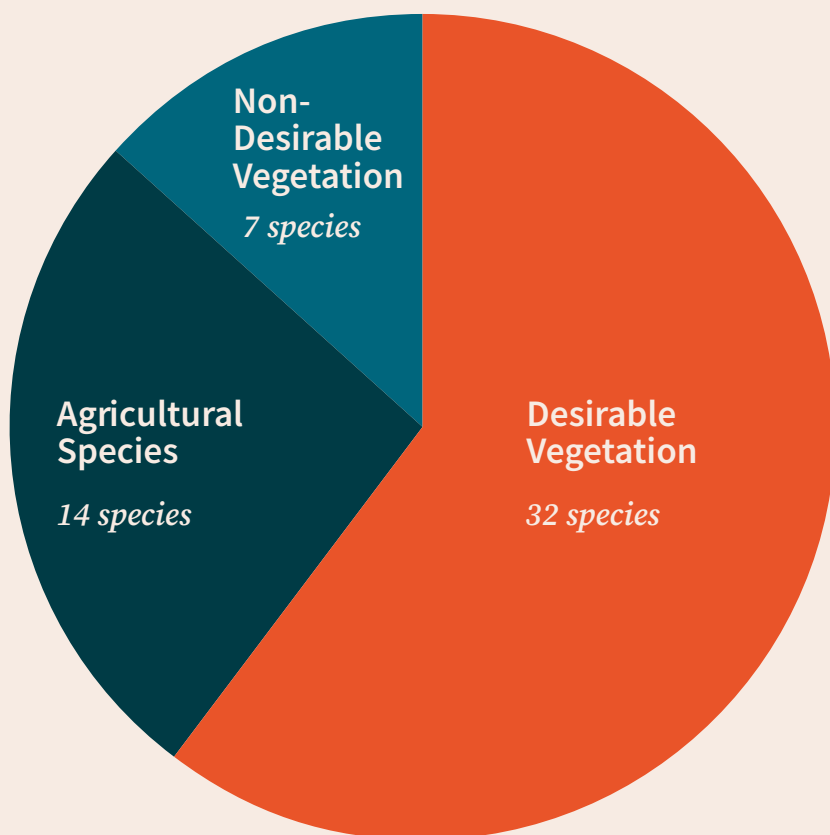
Increase in Desirable Vegetation

Purpose

| UN SDG 15 - Life on Land



Figure 2: Observed Herbaceous and Woody Vegetation Across All Surveyed Sites



There was a large presence of desirable vegetation found during our 2023 surveys across all surveyed sites. Many of the sites were formerly agricultural fields which resulted in the presence of some 'leftover' agricultural species. Non-desirable vegetation includes species generally classified as weeds. Our surveys indicated that conditions are changing to become more favourable for native herbaceous and woody vegetation.

32 Observed Desirable Vegetation:

Dandelions, cinquefoil, grass spp., fern sp., common yarrow, avens, wild mustard, plantain, hemp nettle, goldenrod, white clover, stinging nettle, galium spp., wild strawberry, anemone, columbine, cattail, stinkweed, clover, horsetail, fireweed, mint, morel mushrooms, silene spp., artemisia sp., buffalo berry, aspen, willow sp., balsam poplar, honeysuckle, snowberry, twinberry

14 Observed Agricultural Species:

Timothy, alsike clover, white clover, brome grass, foxtail barley, oats, rumex spp., buckwheat, canola, foxtail, barley, ryegrass, green foxtail, alfalfa

7 Observed Non-desirable Species:

Lambs quarters, tansy mustard, stinkweed, dock sp., sweet clover, groundsel, circium spp.

Purpose

| UN SDG 15 - Life on Land



Indicator 15.2.1: Progress towards sustainable forest management

The Project Forest Rewilding Plans, Monitoring Protocols, and Remediation Actions are designed to ensure the health and success of our forest. *Sustainable forest management* balances the needs of the community with the long-term use of forest resources while preserving the ecological integrity and benefits the forest provides to people and the environment. As part of Project Forest's commitment to rewild land on behalf of our partners and the wider community, we employ a number of tools and metrics to provide scientific verification that our project sites will become mature forests that will benefit the environment and surrounding communities today, and generations to come.

Rewilding Plans

Prior to planting a forest we create a Rewilding Plan to identify and address any challenges and to ensure that the seedlings planted have the best chance of survival.

To create a Rewilding Plan, a site visit is conducted to survey the area where we identify and develop mitigation strategies for any site limiting factors and come up with a recommended species list. After consultation with the landowner we finalize the number and types of species that will be planted. Our Rewilding Plans include detailed planting maps, site limiting factor mitigation strategies, end of life vegetation management plans, site preparation prescriptions, and a project specific monitoring plan (Appendix B – Sample Rewilding Plan).

We tailor our rewilding plans to site conditions, the surrounding species mix, and the community's needs to ensure the success of our forests.

Monitoring Protocols

The Project Forest Monitoring Plan requires that 2.44 plots per hectare are surveyed and each plot location is permanently marked. The survey data collected is used to prescribe future monitoring and maintenance events. We budget for a 25% fill plant for each project site in the event of significant tree mortality within the first six years. Our monitoring protocol ensures the seedlings planted are on a trajectory to becoming a mature forest through annual monitoring for up to six years post-planting (Appendix C - Monitoring Protocols).

Sustainable Forest

Management is a way of using and caring for forests to maintain their environmental, social, cultural and economic values and benefits over time (NRCAN, 2024).

Purpose

| UN SDG 15 - Life on Land



Fill plant areas marked in white on the Camp Creek Survey Map

Remediation Activities

In the event of substantial tree mortality prior to the site passing the standard set out in our monitoring protocols, Project Forest will conduct a fill plant. A fill plant will occur when a 'Not Sufficiently Restocked (NSR)' area is identified. We budget for a 25% fill plant for each project site and are able to pool and target funds to affected project sites when needed. The 2023 Annual Monitoring Surveys indicated that three of the seven sites surveyed may require remediation activities:

- Camp Creek:** The results of the Annual Monitoring Survey conducted at Project Forest Camp Creek in September 2023 indicated that 60 of 75 plots surveyed were stocked with acceptable trees (SR + NSR-LIG). The site is deemed to be 80.0% stocked. Two NSR areas have been identified to be considered for a fill plant.
- Golden Ranches:** The results of the Annual Monitoring Report conducted at Project Forest Golden Ranches in October 2023 indicated that 93 of 138 plots surveyed were stocked with acceptable trees (SR + NSR-LIG). The site is deemed to be 67.4% stocked. Several NSR areas have been identified to be considered for a fill plant.
- Flatbush:** The results of the Annual Monitoring Report conducted at AMA Centennial Forest - Flatbush in November 2023 indicated that 90 of 116 plots surveyed were stocked with acceptable trees (SR + NSR-LIG). The site is deemed to be 77.6% stocked. Two NSR areas have been identified to be considered for a fill plant.

Purpose

| UN SDG 15 - Life on Land



Indicator 15.3.1: Proportion of land that is degraded over total land area.

Together with First Nations communities across Western Canada and conservation groups like the Nature Conservancy of Canada (NCC) and the Alberta Conservation Association (ACA), Project Forest is working to rewild degraded land that has been disturbed and has not recovered through normal ecological processes.

Project Forest has planted two forests on First Nations land, the Project Forest Swan River First Nation Ecological Reconciliation Project and the Cumberland House Cree Nation Food and Medicine Forest. Both of these sites were once used for agriculture and were sitting stagnant prior to planting the forests. The Swan River First Nation site was overgrown with Canada Thistle, an invasive species. In the words of former Swan River First Nation Councillor, Dustin Twin,

Ecosystem degradation

is defined as, “an event or process that reduces the productivity or value of an ecosystem, or that delays or prevents an ecosystem from recovering from disturbance through normal successional processes” (Haeussler et al., 2002).

“We are healing the land that should never have been damaged in the first place.”

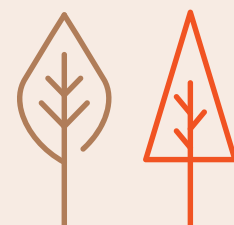
Project Forest Camp Creek and the Strathcona Forest are partnerships with ACA. The land partners at Project Forest Golden Ranches are the NCC, ACA, Edmonton and Area Land Trust, and the Alberta Fish and Game Association. These sites are situated on agricultural land that had been previously used for marginal crops. Through planting a variety of native species, we have accelerated the process of returning the degraded land back to native mixedwood forest.

5

Land Partners

The Nutrien Forest is a plantation of 26,100 Okanese poplar located at Nutrien’s Fort Saskatchewan, Alberta nitrogen plant. The trees were planted to reclaim a 17-hectare gypstack: a pile of phosphogypsum that had been contoured, covered with soil, seeded to a grass mixture, and planted. The ‘industrial forest’ is planted with Okanese poplar, a fast-growing poplar hybrid that will sequester carbon at a high rate.

Rewilding degraded ecosystems has several positive effects including, an improvement to soil health, increased biodiversity, habitat for birds and animals, ground water filtration, and improved air quality.



Purpose

| UN SDG 13 - Climate Action

Goal: Take urgent action to combat climate change and its impacts.

Matching ESG Goals:

- Reducing GHG emissions
- Experiencing nature in an educational and interactive way



The forests we plant can have a significant impact on mitigating climate change.

Indicator 13.2.2: Total greenhouse gas emissions per year

Forests act as carbon sinks, absorbing carbon dioxide (CO₂) from the atmosphere through photosynthesis and storing it in their biomass and soil. Through planting forests, we increase the amount of CO₂ sequestered, thereby reducing the concentration of greenhouse gases (GHGs) in the atmosphere. This helps mitigate climate change by reducing the amount of CO₂ that contributes to global warming (NRCAN, 2022).

The Project Forest Golden Ranches, Strathcona Forest, Camp Creek, Nutrien Forest, AMA Centennial Forest Flatbush, and AMA Centennial Forest Benoit sites will significantly impact climate change mitigation by sequestering approximately 191,221 metric tonnes of CO₂ over the lifetimes of the forests.

Project Forest uses the [Carbon Budget Model of the Canadian Forest Sector \(CBM-CFS3\)](#) modelling framework developed by Natural Resources Canada to assess the impacts of our forests on carbon. This is the national standard for reporting on forest carbon.

191,221

Metric tonnes of CO₂ projected to be sequestered

Carbon Budget Model of the Canadian Forest Sector

is an aspatial, stand- and landscape-level modelling framework used for international reporting of the forest carbon balance of Canada's managed forest (NRCAN, 2024).

*CO₂ sequestration was not calculated at the Cumberland House Cree Nation Food and Medicine Forest or for the second planting at the Swan River First Nation Ecological Reconciliation Project due to the species planted. Food-bearing and medicinal plants and shrubs have a negligible carbon benefit.

Purpose

| UN SDG 13 - Climate Action



Target 13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning

Project Forest provides our partners and the wider community with the opportunity to participate in educational activities through our **Community and Corporate Outreach Program**. Experiencing nature in an educational and interactive way enriches knowledge, fosters a connection with the environment, promotes well-being, and encourages responsible environmental behaviour. These are some of the engagement activities we conducted in 2023:

Lunch and Learns, Keynote Presentations and Panel Discussions

- Overview of the rewilding process, our projects, and stories of community impact
- Stakeholder project impacts and opportunity to engage with the Project Forest team

Corporate Tree Planting Events

- In 2023, 230 people from our funding partner organizations joined us to plant trees at Golden Ranches and the Ann & Sandy Cross Conservation Area; of these, 109 people planted their first tree that day
- Educational talks on seedling physiology, forest succession, tree planting, survey methodology, seed collection, plant identification, and traditional plant uses

Indigenous Engagement

- Opportunity to learn from Indigenous Knowledge Keepers and Elders in various capacities including presentations, interviews, talks, and our Corporate Planting Events and Annual Partner Celebration

Podcast, radio, tv and webinar interview

- Overview of the rewilding process for general audiences
- Discussions of more in-depth topics such as working with Indigenous communities, operating a non-profit, and sustainable forest practices

Annual Partner Celebration

- Presentations featuring speakers from the Project Forest community
- Focus on Indigenous reconciliation through rewilding, sustainable business practices, and community investment

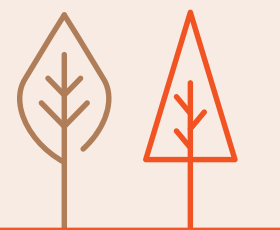
Seedling and Seed Kit giveaway events throughout the year

- Opportunity to interact with the Project Forest team
- Celebrate the impact your organization is making
- Engage with the Project Forest community

In 2023, Project Forest was recognized for our work to address environmental and climate change issues in our community with an [Emerald Award](#) in the category of Community Group or Non-Profit.

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Funding Partners



Purpose

| UN SDG 11 - Sustainable Cities and Communities

Goal: Make cities and human settlements inclusive, safe, resilient and sustainable

Matching ESG Goals:

- Generating social & economic growth
- Advancing health & wellbeing
- Developing deeply ingrained Indigenous relationships



Restoring degraded land can have a positive impact on communities through creating safe, resilient, and sustainable natural spaces.

Target 11.4: Strengthen efforts to protect and safeguard the world's cultural and natural heritage



Tobacco sprinkled around a seedling in a planting ceremony

Forests hold immense cultural and spiritual significance for many Indigenous Peoples. Through planting forests in Indigenous communities, we provide opportunities to preserve cultural heritage, traditional knowledge, and spiritual connections to the land. Forests provide a space for traditional land-use activities including ceremonies, hunting, and gathering food and medicinal plants.

2

Indigenous Land Partners

Purpose

| UN SDG 11 - Sustainable Cities and Communities



Planting native species can re-establish the natural heritage of the landscape. Project Forest learns from our Indigenous land partners which plants are significant to their culture and diet, and which plants once grew on the land that are no longer present. We plant species that prioritize the community's goals for the land, the site conditions, and the natural region. Project Forest works closely with Registered Professional Foresters and environmental professionals to ensure we are planting the right tree in the right place for the right reason.

In June 2023, Project Forest returned to Cumberland House Cree Nation for a second planting event at the Cumberland House Cree Nation Food and Medicine Forest. Eight native plants with cultural significance to the Nation were planted: white spruce, Bebbs willow, raspberry, white birch, silver buffaloberry, saskatoon, mountain ash, and lowbush cranberry.



“...The Project Forest Cumberland House Cree Nation Food and Medicine Forest signifies our community's commitment to restoring and preserving our cultural heritage. By reintroducing these food-bearing and medicinally significant plants and trees, we ensure the well-being of our community and future generations.”

—**Chief Rene Chaboyer**, Cumberland House Cree Nation

A second planting event occurred at the Swan River First Nation Ecological Reconciliation Project in May 2023. The following food and medicinal plants were added to the previously planted forest: saskatoon, raspberry, wild strawberry, American mountain ash, bog cranberry, dewberry, wild rose, red osier dogwood, and buffaloberry.

Indigenous communities have extensive knowledge about local plant species, their cultivation, and their traditional uses. By planting food and medicine forests, traditional knowledge is preserved and utilized, fostering cultural identity and strengthening community resilience. The sharing of intergenerational knowledge, as Elders share their experience and the youth learn traditional practices, preserves both our cultural and natural heritage.

Purpose

| UN SDG 11 - Sustainable Cities and Communities



Indicator 11.a.1: Number of countries that have national urban policies or regional development plans that (a) respond to population dynamics; (b) ensure balanced territorial development; and (c) increase local fiscal space

The forests we plant provide areas for recreation and traditional land use within the community. Our funding partners finance the rewilding costs including seedlings, planting, and labour, allowing communities to allocate more funds to services and infrastructure.

When working with Indigenous communities, Project Forest offers the first right of refusal for site preparation and maintenance work to the Nation. Rewilding projects require labour to complete, including but not limited to:

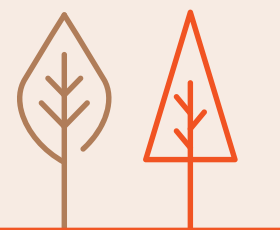
- Mechanical site preparation
- Seed collection
- Tree planting
- Vegetation management
- Survival assessment survey and data collection
- Cover crop deployment
- Construction work

At the Cumberland House Cree Nation Food and Medicine Forest we were able to offer the Nation total of 191.5 employment hours invoiced by Cumberland House Cree Nation to Project Forest in 2022, and 76 employment hours in 2023.

By investing in rewilding, Project Forest funding partners are creating employment opportunities. The income earned by individuals through these jobs can have a positive economic impact, leading to increased tax revenues for the government and expanding *local fiscal space*.

Local fiscal space

is defined as the sum of financial resources available to a government for the improved delivery of basic services without any prejudice to the sustainability of a government's financial position (Heller, 2005).



Positive Impact

| UN SDG 2 - Zero Hunger

Goal: End hunger, achieve food security and improved nutrition and promote sustainable agriculture.



Planting a forest can have indirect but important impacts on addressing hunger, achieving food security, improving nutrition, and promoting sustainable agriculture.

Target 2.1: By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.

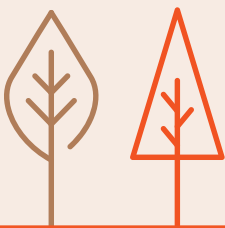
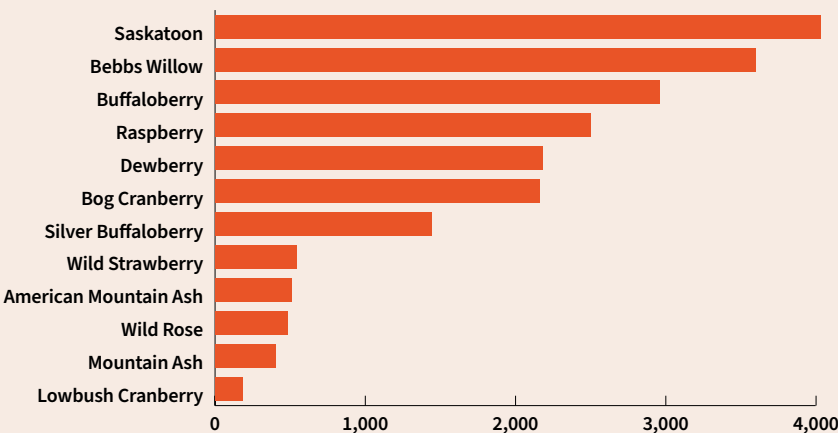
Indigenous food and medicine forests incorporate a wide variety of plant species, including vascular plants, shrubs, fungus, bushes, and trees. This diverse range of edible and medicinal plants provides a broad selection of food and healing sources for the community year round.

By growing food and medicinal plants, Indigenous communities can reduce their reliance on external sources and commercial markets. This enhances the community's self-sufficiency and food sovereignty.

In 2023, Project Forest planted 20,580 food, medicinal, and culturally significant plants across three of our eight project sites. A total of 12 different species were planted (Figure 2).

20,580
Food and Medicine
Plants and Shrubs Planted

Figure 2: Food and Medicinal Species Planted in 2023



Positive Impact

| UN SDG 3 - Good Health and Well-Being

Goal: Ensure healthy lives and promote well-being for all, at all ages.



Planting a forest can have several positive impacts on ensuring healthy lives and promoting well-being for all ages.

Target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination

Forests act as natural air filters by absorbing pollutants and particulate matter from the atmosphere. Trees remove harmful gases by absorbing them through their leaf stomata, filtering these chemicals from the air. Particulate matter is intercepted by the tree's surfaces. When it rains, the particles are washed off and carried to the ground. Planting forests can help improve air quality, by reducing the exposure of communities to harmful pollutants (Nowak et al., 2014).

In addition to improving air quality, forests provide opportunities for people to connect with nature, enjoy recreational activities, and experience the positive physical and mental health effects of spending time outdoors. They also provide various ecosystem services that indirectly contribute to our health and well-being.

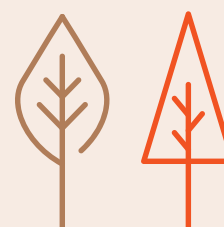
Some of the important ecological services provided by forests include:

- cleaning water through water filtration
- cleaning air through oxygen production and absorption of pollutants
- rebuilding of soils and restoration of nutrients
- holding back floodwaters and releasing needed water into rivers and streams
- absorbing CO₂ from the atmosphere
- maintaining biodiversity by providing habitat for countless species

These services all indirectly impact human health and well-being.

8

Communities Impacted



Positive Impact

| UN SDG 6 - Clean Water and Sanitation

Goal: Ensure availability and sustainable management of water and sanitation for all



The forests we plant can have positive impacts on ensuring the availability and sustainable management of water.

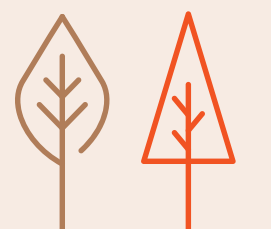
Indicator 6.3.2: Proportion of bodies of water with good ambient water quality.

Forests filter, purify and improve the quality of our water. Tree roots help retain soil and reduce the transport of pollutants into water bodies. Planting forests in watershed areas can contribute to protecting water quality, ensuring access to clean water for communities (NRCAN, 2021).

While planting forests alone cannot solve all our water-related challenges, they do offer nature-based solutions to help achieve sustainable management of our water resources.

Target 6.6: By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes

Forests act as natural sponges and filters, absorbing rainfall and gradually releasing it while purifying it as it passes through the ecosystem. By restoring forests, we can enhance water quality, reduce erosion, and promote water retention in the landscape.

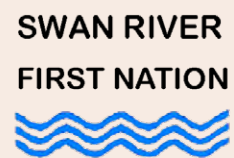


Our Partners

| 2023 Land Partners



Project Forest Camp Creek



Our Partners

| Funding Partners



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Afforestation Survey Cover Page

Afforestation Survey Cover Page				
Surveyor ID 1	Maclean Forbes		Survey Date(s)	Fall 2023 & May 2024
Surveyor ID 2	Jenny McGuinness		Total Plots	504
Surveyor ID 3	Nadina Gardiner			
Surveyor ID 4	Lindsay Dent			
Stocking Calculations				
Type of Plot			# of Plots	% of Plots
Stocked with Acceptable Conifer trees			134	26.6
Stocked with Acceptable Deciduous trees			8	1.6
Stocked with Acceptable Shrubs			49	9.7
Stocked with Acceptable Conifer & Deciduous trees			3	0.6
Stocked with Acceptable Conifer trees & Shrubs			21	4.2
Stocked with Acceptable Deciduous trees & Shrubs			10	2.0
Stocked with Acceptable Conifer & Deciduous trees & shrubs			3	0.6
Not Sufficiently Restocked-Let It Grow with Conifer			103	20.4
Not Sufficiently Restocked-Let It Grow with Deciduous			15	3.0
Not Sufficiently Restocked-Let It Grow with Shrub			27	5.4
Not Sufficiently Restocked-Let It Grow with Conifer & Deciduous			5	1.0
Not Sufficiently Restocked-Let It Grow with Conifer & Shrubs			19	3.8
Not Sufficiently Restocked-Let It Grow with Deciduous & Shrubs			3	0.6
Not Sufficiently Restocked-Let It Grow with Conifer & Deciduous trees & shrubs			0	0.0
No Acceptable Woody species present			104	20.6
Acceptable Stocking Summary				
Type of Plot			# of Plots	% of Plots
Total SR			228	45.2
NSR (excludes NSR-LIG)			104	20.6
NSR-LIG Stocking			172	34.1
Total Stocking (SR + NSR-LIG)			400	79.4
Herbaceous Vegetation Observed During Assessment				Any additional species observed in-between plots or not listed on the tally card (Including Noxious Weeds):
Alfalfa	Dock sp.	Rumex spp.		Canada Thistle, Sow thistle, Common Tansy
Alsike clover	Fern sp	Ryegrass		
Anemone	Fireweed	Silene spp.		
Artemisia sp.	Foxtail	Sow thistle		
Avens	Foxtail barley	Stinging nettle		
Barley	Galium spp.	Stinkweed		
Bromegrass	Goldenrod	Strawberry		
Buckwheat	Grass sp.	Tansy mustard		
Canola	Green foxtail	Timothy		
Cattail	Groundsel	Wild mustard		
Cinquefoil	Hemp nettle	Morel mushrooms		
Circium spp.	Horsetail			
Clover	Lambs quarters			
Columbine	Mint			
Common Yarrow	Oats			
Dandelions	Plantain			

Appendix B - Sample Rewilding Plan

Project Forest – Alberta Conservation Association

SAMPLE Conservation Site Rewilding Work Plan

Date



Prepared by:



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1 Project Overview

Project Forest and Alberta Conservation Association (ACA) have partnered to rewild SAMPLE ha within the SAMPLE Conservation Site. Project Forest has retained Tree Time Services for project planning, project management and field implementation of the Project Forest ACA Rewilding Project.

The ACA has 5 long-term objectives for management of the SAMPLE Conservation Sites. Partnering with Project Forest will achieve 3 of the 5 long-term objectives including:

- Promote and restore native biodiversity,
- Increase ecological connectivity, and
- Increase carbon sequestration.

As per information provided by the ACA, the site does not require mechanical site preparation. Prior to planting, a cover crop will be sown. As part of the rewilding scope of work, the project area has been assessed, seedling and site preparation prescriptions have been developed, and a post implementation monitoring program has been developed.

The project site is about 100 km northeast of Edmonton. See **Error! Reference source not found.** for an **Error! Reference source not found.**

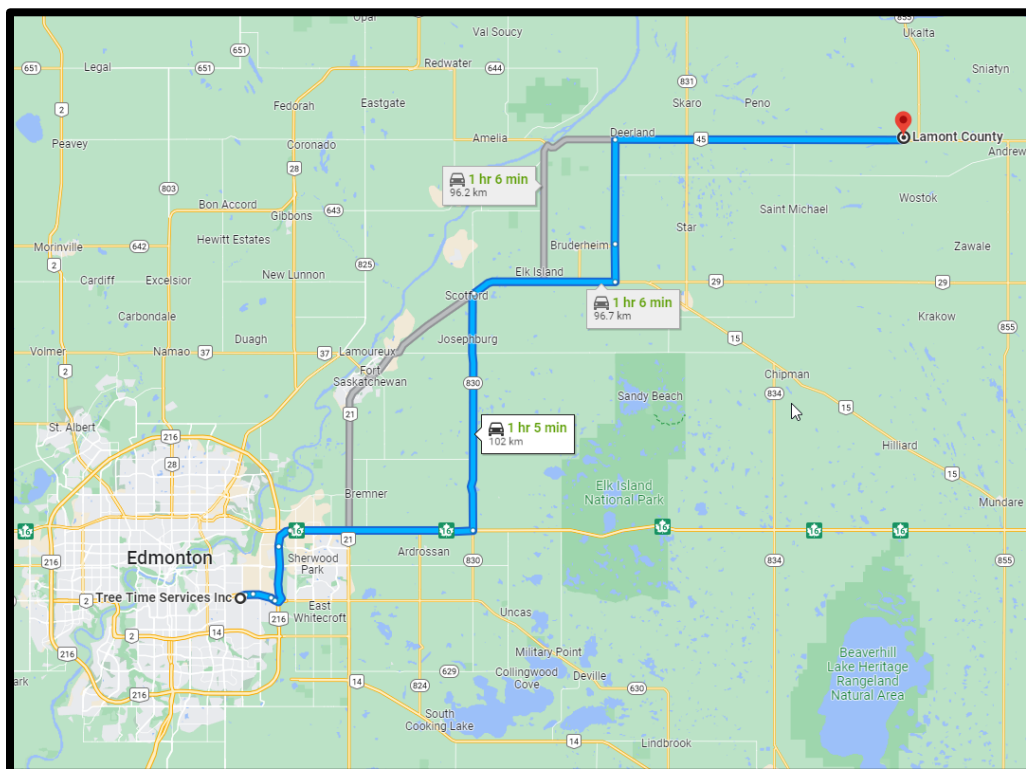


Figure 1. Directions to SAMPLE Conservation Site from Edmonton, AB

2 Site Prescription

The property is located in a transition zone between the Dry Mixedwood Natural Sub-Region of Boreal Forest and the Central Parkland and within the Central Parkland 1.1 seed zone. This site is SAMPLE ha in area and has been divided into 3 areas. Table 1 lists the sections of the project site and their respective areas. See **Error! Reference source not found.** the site prescription map.

Table 1. Project site sections and respective areas

Section	Area (ha)
A	2.5
B	3.0
C	3.7

Based on aerial imagery Section B of the planting area is a continuation of wetland from the lake to the forested section adjacent to the planting site. Both Section A and C are more upland.

2.1 Site Preparation

The area the ACA has identified for tree planting section will not require site preparation. Since the ACA secured the site, the ACA has entered into a Crop Licence Agreement with the neighbouring landowner, with the intent to crop the land until restoration activities can be conducted on the crop field.

Based on this agreement, no further site preparation is required regarding the revegetation of this site.

2.2 Cover Crop

A cover crop will be sown to minimize vegetative competition during the first season of growing. A cover crop using a native seed blend will be deployed at a seeding rate of 15 kg/ ha. The cover crop was developed in consultation with a supplier of native seed mix company. Table 2 lists the grass seed mix for the cover crop.

Table 2. List of grass seed to be deployed

Species	% of Blend by Weight
Rocky Mountain Fescue	16.0
Green Needlegrass	10.0
Slender Wheatgrass	12.0
Northern Wheatgrass	18.0
Diploid Annual Ryegrass	10.0
White Clover	10.0
Nuttall's Alkaligrass	4.0
Canada Wildrye	15.0
Western Wheatgrass	5.0

Two viable options exist for the distribution of seed for the cover crop: seed tilling or drone seeding. An environmental professional will visit the site and determine which of the two options will be used.

2.3 Seedling prescription

Tree planting will occur in May/ June of 2023. The area will be planted on average 2200 stems/ha. Table 3 displays the seedlings ordered for the project area. Sections A & C are prescribed white spruce, lodgepole pine, and white birch. The white birch will be planted in clusters of 10 seedlings, and the white spruce and

lodgepole pine will be uniformly distributed. These species were chosen because of the upland soils, and the surrounding forest composition. Section B was prescribed black spruce based on aerial imagery and is consistent with the transition from the lake to the wetland adjacent to the polygon.

Table 3. Seedlings ordered for project area

Season	Species	Latin Name	Amount	Section
Spring 2023	Lodgepole Pine	<i>Pinus contorta var. latifolia</i>	3780	A, C
Spring 2023	White spruce	<i>Picea glauca</i>	8280	A, C
Spring 2023	White Birch	<i>Betula papyrifera</i>	1980	A, C
Spring 2023	Black Spruce	<i>Picea mariana</i>	5940	B

The average tree planting density for the site was increased due to several reasons:

- The birch will be planted in clusters that equate to ~4,000 stems/ ha,
- The edges of the site adjacent to the road will be planted at a higher density, and
- Higher than expected mortality has been observed at similar sites.

Seedlings will not be evenly distributed across site. It will have more variable spacing between seedlings to develop a more natural distribution.

3 Project Implementation Considerations

3.1 Permit Requirements

No permits are required at this time.

Should permits be required, all processes and procedures will be followed prior to starting work.

3.2 Resource List

See Appendix 3 for resource list. This includes resources required to complete the work, including a 25% fill plant if required.

4 Project Monitoring

A project specific monitoring plan will follow the *Project Forest Monitoring Assessment Standards*. Annual site assessments will be conducted to monitor the project. A Final Assessment will determine if the site is on trajectory to become a mature forest. Currently, the expectation is to have the Final Assessment completed in the fall of 2029.

5 Maintenance

Maintenance recommendations will be based on the latest monitoring assessment. Recommendations may include vegetation management or fill planting and will be discussed with the ACA. Once the Final Assessment is successful, the site will no longer require maintenance.

6 Deliverables and Timeline

Table 4. Project deliverables and timelines

Deliverable	Description	Timelines
Planning	<ul style="list-style-type: none"> General consultation, client meetings. Determining cover crop plan. Completion of Rewilding Plan. Finalization of Monitoring Plan. Additional time for project management. 	February - March 2023
Project Seedling Ordered	<ul style="list-style-type: none"> Lodgepole Pine: 3780 seedlings White spruce: 8280 seedlings White Birch: 1980 seedlings Black Spruce: 5940 seedlings Cold storage, transportation, and storage 	Deliver Spring 2023
Cover Crop	<ul style="list-style-type: none"> Purchase cover crop seed. Sow cover crop. 	May 2023
Planting Phase	<ul style="list-style-type: none"> All seedlings 	May/ June 2023
Monitoring Program	<ul style="list-style-type: none"> The site will be monitored based on the monitoring protocols developed with the Rewilding Plan. 	Start: 2024
Fill Plant	<ul style="list-style-type: none"> A fill plant would occur at any point during the annual assessment survey process should data indicate that the site may not meet the rewilding standards of the monitoring plan. The project budget will include funding for a 25% fill plant. 	If required, prior to Final Survey
Final Assessment	<ul style="list-style-type: none"> Complete final assessment to confirm observations that the site is on a trajectory to becoming a forest. 	no later than fall 2029

7 Safety

Project Forest expects a high degree of safety from all contractors and people on site. Therefore, Project Forest requires a site-specific safety plan from the main contractor or supervisor on site. This plan needs to include:

- First aid requirements,
- Emergency response plan,
- Safe work permits (if applicable),
- Verification of safety tickets,
- Site orientation,
- Daily tailgates,
- Ongoing Hazard and Risk Assessments, and
- A copy of the contractors Health and Safety Plan

Additionally, Project Forest Contractors will follow their respective health and safety plans as well as Alberta OH&S procedures and guidelines. If there are any conflicts with safety plans or policies, the most stringent plan will take precedence. Any injury, damage or other adverse event must be reported to Project Forest immediately.

Appendix C - Monitoring Protocols

Project Forest - *Project Forest Monitoring Assessment Standards*

Version: 1.1

Date: March 28, 2024



Version Number	Purpose/ Change	Author	Date
1.1	Update Protocols – based on field and reporting feedback	Lindsay Dent, RPF; Tree Time Services Inc	March 28, 2024

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1 About the Project Forest *Monitoring Assessment Standards*

This monitoring program has been designed specifically to assess the progress of Project Forest project areas. The purpose of this document is to establish a standard that can be adjusted to individual Project Forest projects. As part of Project Forest's commitment to their partners, this monitoring program aims to provide a level of scientific verification that planted seedlings are on trajectory towards becoming mature shrubs and trees. The *Monitoring Assessment Standards* will be tailored to the unique field level conditions and goals of each site as Project Forest is committed to monitoring, maintaining, and delivering corrective treatments on each project.

This monitoring program incorporates legislated methods of disturbance assessment for public forested lands in Alberta. Although some of the assessment and survey procedures are unique to this document, the background information, methodology, and rationale for this monitoring program are obtained from the following documents: Reforestation Standard of Alberta, Alberta Regeneration Standards for the Minable Oil Sands, and the 2010 Reclamation Criteria for Wellsites and Associated Facilities for Forested Lands.

1.1 Project Forest Background

Project Forest partners with various organizations to create opportunities to rewild and grow natural infrastructure across Western Canada. By collaborating with conservation groups, Indigenous communities, and other land partners, and connecting them with businesses, we aim to afforest non-productive land and transform it into thriving forests or natural infrastructure that will benefit communities of the land partners. These partnerships allow landowners and First Nations communities to plant their land, which increases biodiversity and other natural benefits, while also allowing businesses to contribute to making a positive environmental change.

Project objectives of all planted areas are:

- To restore habitat loss created from agriculture, and industrial disturbance on sites that have no legislated obligations to restore natural habitat.
- To ensure that planted seedlings are on a trajectory to grow into mature shrubs and trees that achieve the projects objects, e.g. a forest.
- To permanently capture carbon and store it in trees and soils therefore reducing the amount of atmospheric carbon.
- To assist landowners in achieving their environmental objectives for the land, with the purpose of the project remaining permanently on the landscape.
- To promote and help businesses grow their Environmental, Social, and Governance criteria score and leave a positive legacy.

1.2 Purpose

The procedures for this Monitoring Assessment Standard were designed to be repeatable, robust, simple, unambiguous, technically defensible, and consistent to produce reliable results. The procedures:

- Provide a method to assess the level of project success at establishing natural infrastructure, and
- Enable the assessment of each area to determine the adequacy of stocking, survival, and growth.

This document describes the procedures to collect the field data, determine the regeneration status of each plot, and extrapolate the information over the site. The data collected under these guidelines will be used to develop treatment recommendations after each monitoring event. Or the project sites are on a trajectory to become mature shrubs and trees that achieve projects' objectives.

1.3 Scope and Applicability

Annual monitoring assessments are conducted on all active Project Forest project sites. The monitoring assessments will be completed in accordance with the procedures described in this standard, unless

otherwise specified and approved by Project Forest. All Project Forest project areas continue to receive annual monitoring assessments until a final assessment threshold has been met.

1.4 Timelines

Monitoring assessments will be completed annually, ideally at the end of the growing season, in the fall. If they cannot be completed in the fall, the following spring is acceptable. Project Forest sites will be eligible for an assessment after one growing season and will be expected to hit target criteria within 6 growing seasons.

See Table 1 for a generalized timeline of assessments. Note that when 80% of monitoring plots are sufficiently restocked, this triggers the completion of the monitoring program, regardless of year. Thus, Project Forest's commitments to their project partners will have been fulfilled and removes the site liability from Project Forest.

Table 1. Survey Timeline

Year/ Season	Assessment*	Description
After first growing season	Year One Survey	<ul style="list-style-type: none"> • Establish and complete plots • Determine Stocking % <ul style="list-style-type: none"> ○ If >80% of plots pass, further monitoring not required ○ If <80% plots pass, recommend additional silviculture treatment to Project Forest <ul style="list-style-type: none"> ▪ Project Forest will initiate treatment accordingly
After second - fifth growing season	Respective Annual Survey	<ul style="list-style-type: none"> • Complete plots • Determine Stocking % <ul style="list-style-type: none"> ○ If >80% of plots pass, further monitoring not required ○ If <80% plots pass, recommend additional silviculture treatment to Project Forest <ul style="list-style-type: none"> ▪ Project Forest will initiate treatment accordingly
After sixth growing season	Year Six Survey	<ul style="list-style-type: none"> • Complete plots • Determine Stocking % <ul style="list-style-type: none"> ○ If >80% of plots pass, further monitoring not required ○ If <80% plots pass, recommend additional silviculture treatment to Project Forest <ul style="list-style-type: none"> ▪ Project Forest will initiate treatment accordingly Final year for treatments.

If less than 80% of a given site is satisfactorily stocked after 6 surveys, then a final silviculture treatment will be delivered. After this final 6-year treatment, Project Forest will no longer be liable for the trajectory of the site.

1.5 Commitment

Project Forest will monitor projects until the site reaches the desired measurements or for a maximum duration of six years, whichever occurs first. Once sites meet the targets listed in this document, they will be considered on the right trajectory to become a mature site, and Project Forest's commitments to their project partners will have been fulfilled, removing liability from Project Forest. If the site does not meet the identified targets within the 6 year time frame, Project Forest will do one last treatment to guide the trajectory of the site to become a mature and successful project. After this last treatment, Project Forest's commitments to their project partners will have been fulfilled, thus removing afforestation liability from Project Forest.

2 Personnel and Equipment Requirements

The following standards address the qualifications of surveyors and equipment requirements to conduct field surveys and apply to all monitoring assessments completed at Project Forest sites.

2.1 Field Surveyor Qualifications

Surveys shall be completed by, or under the direct supervision of an environmental regulated professional with education and/ or experience in plant identification and vegetation monitoring. This individual needs to be a member of an association such as the Alberta Association of Forest Management Professionals, Forest Professionals British Columbia, Alberta Institute of Agrology, or the Alberta Society of Professional Biologists, etc.

Direct supervision includes:

- Overseeing the surveys as they occur,
- Providing direction and feedback to surveyors in a timely manner, and
- Ensuring surveys being conducted under their direct supervision are complete and accurate.

Companies hired to complete monitoring assessments for Project Forest will list the names (first and last) of qualified surveyors on the monitoring assessments cover page (Appendix 1) and Assessment Summary Sheet (Appendix 2).

2.2 Global Positioning System

The use of a Global Positioning System (GPS) for surveys is required when establishing plot centers. When surveyors choose a GPS for completing the monitoring assessment:

- The minimum accuracy of the GPS receivers should be 10 meters horizontally at a 95% confidence level.
- The GPS receiver should be set to position or record using the North American Datum for 1983 (NAD 83).

GPS best practices include:

- GPS receivers are set to position or record in 3D mode (i.e., simultaneous observations to a minimum of four satellites); and
- During static point-mode surveys, the minimum recording duration at each survey point should be 30 seconds with a minimum of 15 individual position fixes during this period

2.3 Field Equipment Requirements

Successful implementation of the monitoring program requires the use of proper field equipment for both safety and precision of data capture. For accurate data capture, specific tools and equipment are required for execution of the monitoring program field components. This list of equipment can be found in Appendix 3: Required Equipment .

3 Survey Standard

The objectives of the monitoring assessments are:

- To determine and document the growth status of a Project Forest site;
- To assess species composition and distribution of seedlings, suckers, and advanced growth with high potential for survival and future growth;
- To identify areas and conditions within a site where regeneration success has been inhibited or is unlikely to meet the goals of the project in the future; and

- To inform the next steps of further silviculture treatments, including Let It Grow, or release the site as the site met acceptable standards.

The monitoring assessment is to be conducted on the predetermined plots, included in the project work plan approved by Project Forest. The purpose of this survey is to determine if regeneration has been established according to the standards found in this document. If an area has not been planted with seedlings, a monitoring assessment is not required as it is not considered part of the afforestation project area.

Once the final assessment criteria has been met according to the *Monitoring Assessment Standards*, the site is passed, and the plot deemed sufficiently restocked (SR).

3.1 Regeneration Stocking

A minimum of one woody stem, over a species-specific height, is required to consider a plot Sufficiently Restocked (SR). For the purposes of the Assessment, a plot is defined as a circular 1.78m radius plot having an area of 10 m². A woody plant is a plant that produces wood as its structural tissue. Woody plants are usually either trees or shrubs.

Any woody plant is considered an acceptable species.

3.2 Acceptable Trees and Shrubs

Stocking status shall be determined by assessing the spatial distribution of woody plants. Mature woody species and planted caliper trees within plots will not be included in the calculations when determining planting success of seedlings.

An acceptable woody plant is an individual seedling, sucker, coppice or advanced regeneration that:

- a) Is alive.
- b) Is a woody plant.
- c) Originated from seed, suckering or coppice.
- d) Achieved the minimum acceptable woody plant requirement at the time of the survey (See Table 2 in Section 3.3).

In addition to the criteria above:

- 1) White spruce and balsam fir trees shall have a live crown ratio of 0.33 or greater.
- 2) Coniferous and deciduous trees will have a diameter at breast height (dbh) of 5 cm or less to be included in the stem count.

3.3 Minimum Total Tree Stocking Percent

If 80% or more of the site's plots are not sufficiently restocked plots, then a silviculture treatment may be warranted. This could include tree-planting if plots are not sufficiently restocked, or a Let-It-Grow approach if plots are stocked but the seedlings are not of sufficient size. Specific treatments will be prescribed by a regulated professional and approved by Project Forest.

Monitoring assessments can be completed any time after a herbicide treatment, provided that the treatment efficacy is evident, and the surveys are still being conducted annually.

Project Forest sites have a standard minimum total stocking requirement. The minimum total tree stocking percent can be no less than 80% for the entire area/ number of plots. Any natural woody plants are eligible for stocking calculations. Project Forest will not meet the minimum total tree stocking percent if rounding is required to reach the minimum percent stocking. For example, if the entire area has a stocking percent of 79.6% it will not meet the requirements, it must be equal to or greater than 80.0%.

In addition, if there is an area that is 1.5 ha or greater that is determined to be NSR the environmentally regulated professional will prescribe a fill plant, even if the stocking percent is greater than or equal to 80%.

All coniferous and deciduous trees that meet minimum acceptable height requirements and all woody plants regardless of height will contribute to stem counts. Any woody species can contribute to conditional status if they are located within the assessment plot boundaries, assuming that they are new growth. Trees with a dbh of 5 cm or greater are not to be counted. If there is a high density of 11 or more stems per a species within a plot, in the plots notes the surveyor may record 10+ seedlings.

Project Forest may choose Let-It-Grow as an afforestation treatment in cases where information has been collected for conditional seedlings present at the time of a monitoring assessment. For the purposes of total stocking percent calculations, conditional plots will be referred to as Not Sufficiently Restocked (NSR).

3.3.1 Final Height Trees

Planted seedlings will only be deemed to be of acceptable height for sufficiently restocked status when they reach the minimum criteria outlined in Table 2. If less than 80% of plots are sufficiently restocked, further silvicultural treatment is required.

Table 2. Criteria for acceptable height requirements to consider for Final Assessment criteria

Species Name	Latin Name	Category	Sufficiently Restocked Conditions
Conifer trees*	N/A	Conifer Tree	1 m
Deciduous trees	N/A	Deciduous Tree	2 m
Green alder	<i>Alnus crispa</i>	Shrub	1 m
Willow spp.	<i>Salix</i> spp.	Shrub	1 m
Red Osier dogwood	<i>Cornus sericea</i>	Shrub	1 m
Saskatoon	<i>Amelanchier alnifolia</i>	Shrub	1 m
Canadian Buffaloberry	<i>Shepherdia canadensis</i>	Shrub	1 m
Raspberry	<i>Rubus idaeus</i>	Shrub	0.75 m
Wild Rose	<i>Rosa</i> spp.	Shrub	0.75 m
Honeysuckle	<i>Lonicera</i> spp.	Shrub	0.9 m
Common Blueberry	<i>Vaccinium myrtilloides</i>	Shrub	Producing berries
Dewberry	<i>Rubus pubescens</i>	Shrub	Producing berries/ runners
Bog Cranberry	<i>Vaccinium vitis-idaea</i>	Shrub	Producing berries

4 Survey Method

4.1 Plot Determination

The assessment locations will be pre-determined by a regulated professional using GIS software after planting events have occurred the first year. The assessment plot centers will be the same each year. When a surveyor is in the field, the surveyor will navigate to the predetermined plot location using a GPS device and then collect specific data present in a 10 m² plot. Once all the plot locations have been determined, the plot information will be saved in a format which will allow it to be uploaded to an appropriate GPS system as per Section 2.2.

Plot Frequency

Area based Project Forest sites will receive at a minimum of 2.77 assessment plot locations per hectare, based on the stratification of the project site. The number of plots will be rounded up. For example, to determine the number of plots required for a project that is 5.1 ha:

$$\begin{aligned}\text{\# of required plots} &= \text{area of site (ha)} \times 2.77 \text{ plots/ ha} \\ &= 5.1 \text{ ha} \times 2.77 \text{ plots/ ha} \\ &= 14.127 \text{ plots} \\ &= 15 \text{ plots}\end{aligned}$$

To determine the spacing between plots based on square spacing grid, use the formula below, along with the continued example from above on how to use the formula.

$$\begin{aligned}\text{Plots spacing (m)} &= \sqrt{\text{Opening Area (ha)} \times 10,000 \text{ m}^2/\text{ha} \div \text{required \# of Plots}} \\ &= \sqrt{(5.1 \times 10,000 \div 15)} \\ &= \sqrt{3,400} \\ &= 58.3 \text{ m}\end{aligned}$$

To determine the spacing between plots based on rectangular spacing grid, use the formula below, along with the continued example from above on how to use the formula.

Each strata identified and planned for will receive a minimum of 3 assessment plots.

Linear based Project Forest sites will receive a minimum of six 5 m long assessment plots per kilometer or a minimum of 3 assessment plots for a project type.

$$\begin{aligned}\text{\# of required plots} &= \text{length of site (km)} \times 5 \text{ plots/ km} \\ &= 0.75 \text{ km} \times 5 \text{ plots / km} \\ &= 3.75 \text{ plots} \\ &= 4 \text{ plots}\end{aligned}$$

To determine the distance between plots, move the first and last plots 10 m in from the linear planting ends. See below to calculate the distance between plots, based on the example above.

$$\begin{aligned}\text{m between plots} &= [\text{length of site (m)} - 10 \text{ m} \times 2 \text{ from linear ends}] / [\text{total plots} - 1] \\ &= [750 \text{ m} - 20 \text{ m}] / [4 \text{ plots} - 1 \text{ plot}] \\ &= 730 \text{ m} / 3 \text{ plot (spaces)} \\ &= 243.33 \text{ m between plots}\end{aligned}$$

The survey intensity is adapted from the Reforestation Standard of Alberta (2021).

4.1.1 Plot Naming and Numbering

A plot number will be assigned to each plot center location. The first plot will be the furthest southeast location along the planting area boundary, and as the plot's numbers increase the plot locations will move from east to west and south to north, following a pattern similar to the Alberta Township numbering system. For example, if there are 56 plots then plot 1 will be the most southeastern plot and plot 56 will be the most north- western plot. See example below.

56	55	54	53	52	51	50	49
41	42	43	44	45	46	47	48
40	39	38	37	36	35	34	33
25	26	27	28	29	30	31	32
24	23	22	21	20	19	18	17
9	10	11	12	13	14	15	16
8	7	6	5	4	3	2	1

Figure 1. Example of Plot Numbering

For the purposes of standardization across Project Forest monitoring projects, plot numbers will be named and numbered. Plots will be referred to with a two-letter identifier in front of the plot number. For example, plot 5 at Golden Ranches would be listed as GR-05.

4.2 Field Work - Plot Assessment

Plot center will be marked by pushing a piece of lath into the ground until it is firmly anchored. The surveyor will write the plot number onto the lath using a permanent marker.. This information is required for future data validation purposes. The marking will correspond with Project name and plot number as discussed above. Once marked, the surveyor will attach two pieces of heavy-duty flagging tape/ ribbon to the lath to make it easily identifiable.

This process is primarily intended for the first year of a monitoring program, when assessment plots have yet to be staked out and named. It is possible that over time, stakes may go missing or that markings may be compromised. Therefore, it is the responsibility of qualified surveyors to ensure missing stakes or faded markings are replenished as needed. As such, extra survey lath should be brought to monitoring programs in subsequent years.

All assessments will occur within the boundaries of a 10 m² plot. The boundaries for the assessment plot are to be determined using the 1.78m plot cord. The presence of acceptable species of coniferous, deciduous, shrub or other will be recorded. **Error! Reference source not found.**, lists the information that is required to be collected during the survey.

To determine if a woody stem is inside the plot, measure from the point where the plot center marker enters the ground to the base of the woody stem. If any part of the stem is within 1.78 m of the plot center, then the woody stem is in the plot.

Included in the documentation of the plot assessment will be:

1. Counts of acceptable woody species
2. Herbaceous vegetation. The herbaceous vegetation documentation is not a tally count.
3. Noxious weeds present. The noxious weeds documentation is not a tally count.
4. Additional growth limiting factors. Examples of growth limiting factors include physical damage, disease, competition, and additional comments

All observations that occur within plot boundaries, with the exemption of herbaceous vegetation and weeds, will be recorded within the Tally Card comments (Appendix 4). If the surveyor observes a herbaceous or woody species, or other pertinent information that is observed during the Assessment that does not fall within any of the plot boundaries, the surveyor will document the observed vegetation on the Afforestation Survey Cover Page as depicted in Appendix 2.

For Linear projects, such as shelterbelts, the same form will be used. The same form can be used for all rows within the linear projects, refer to Appendix 2.

For caliper trees, all caliper trees unless otherwise stated will receive an assessment. See form in Appendix 5.

4.3 Plot Data

4.3.1 Tree species

An acceptable tree is an individual seedling, sucker, coppice, or more advanced growth that:

- Is alive;
- Is a woody species;
- Originated from seed, suckering, coppice, or planting;
- Is 30 cm or taller if a coniferous tree;
- Is 130 cm or taller if a deciduous tree; and
- Does not have a dbh larger than 5 cm.

4.3.2 Tallest Woody Stem in Plot

Height shall be measured as the tree lies perpendicular (plumb) from upper most live bud to ground for all trees regardless of lean from vertical. Where no acceptable woody stems are present in the plot, record “No” in the appropriate space under the Species field.

4.3.3 Other Factors

These are observations of presence of factors that are, or may, impact seedling vigour or survival. There are sections in the tally assessment (Appendix 4) to note presence of damage, disease, competition, noxious weeds, and other comments that the Environmental Professional and Project Forest should be made aware of so impact to the site’s success can be mitigated through treatment recommendations.

Weeds/ Undesirable Plants

Weeds are generally defined as undesirable or unwanted plants. The distribution of weeds’ locations will be documented throughout the site.

4.3.4 Herbaceous Cover

This section will be completed for every fourth plot. The assessor will list the herbaceous species visible from the plot, which means that species that are visible from the plot but outside the plot should be recorded. This information will inform how the site is progressing as the site matures, and if there is increasing biodiversity.

4.3.5 Assessment photos

Several photo types need to be captured during the assessment.

-tentative table placeholder-

Photo Type	Description & Instructions
Project Photo	A (non-survey) stake will be placed in a spot which can be used as a camera support in an area which will capture a large portion of the site. A landscape photo should be taken and match the monitoring protocols for the site. The purpose of this photo is to demonstrate the growth and change of the site year over year.
General Plot Photo	The purpose is to capture the plot name of the stake and show the general vegetation cover within the plot. The photo should face north for consistency and to capture the change and development of the site over time.
Tallest Woody Species	This will capture and document this information on the tally sheet.
other site observations	This will document the concerns or observations that should be noted in the Tally Cover Page. Examples of this would include damage to seedlings (physical, insect, disease), competition, and noxious weeds.
General Site Photos	This includes insects, birds, animals, natural ingress, or other beautiful photos. These photos will be used by Project Forest Communications Division to share the story of the project’s growth.

4.4 SR and NSR Definitions

A plot will be considered SR if:

- at least one woody stem that meets height requirements is tallied within the boundaries of a 10 m² plot,

A plot will be considered NSR if:

- there is less than one woody stem meeting height requirements within the boundaries of a 10 m² plot.

A plot will be eligible for an NSR-LIG code if:

- the number of under-height trees as per Section 3.5 brings the total woody stem count to at least one stem within the boundaries of a 10 m² plot, and
- at least one of the total stems, including under-height woody stems, within the 10 m² plot are woody stem.

4.5 NSR Protocols

When a plot is eligible for NSR-LIG, it is still considered NSR. However, if eligible for NSR-LIG, the NSR-LIG status will be considered an afforestation treatment and no further work is required.

During the Final Survey, if a plot is classified NSR and is not eligible for NSR-LIG, the surveyor will conduct:

- a) One plot 25 m north of the NSR plot center; and
- b) One plot 25 m south of the NSR plot center.

After completing the two additional plots, the three-plot area will be considered SR if:

- a) Both additional plots meet the SR requirements; or
- b) One plot meets SR, and a second plot is eligible for NSR-LIG; or
- c) Both additional plots are eligible for NSR-LIG.

After completing the two additional plots, the three-plot area will be considered NSR if one or more of the additional plots is considered NSR and not eligible for NSR-LIG.

4.6 Survey Data Collection

Project Forest will inform the surveyor on the platform to use to collect survey data for the projects.

During data collection, Table 3 lists the abbreviations for the different plot types recommended for use, if required

Table 3. Abbreviations for the various plot types available during assessments

Identified Plot Type	Abbreviation
SR with Acceptable Conifer trees	SR – C
SR with Acceptable Deciduous trees	SR – D
SR Acceptable Shrubs	SR – S
SR with Acceptable Conifer & Deciduous trees	SR – CD
SR with Acceptable Conifer trees & Shrubs	SR – CS
SR with Acceptable Deciduous trees & Shrubs	SR – DS
SR with Acceptable Conifer & Deciduous trees & shrubs	SR – CDS
NSR-LIG with Conifer	NSR-LIG – C
NSR-LIG with Deciduous	NSR-LIG – D
NSR-LIG with Shrub	NSR-LIG – S
NSR-LIG with Conifer & Deciduous	NSR-LIG – CD
NSR-LIG with Conifer & Shrubs	NSR-LIG – CS
NSR-LIG with Deciduous & Shrubs	NSR-LIG – DS
NSR-LIG with Conifer & Deciduous trees & shrubs	NSR-LIG – CDS
NSR -No Acceptable Woody species present	NSR

4.7 Plot Level Stocking Calculations: Sufficiently Restocked (SR) and Not Sufficiently Restocked (NSR) Status

When the surveyor is assessing the stocking of a plot, the surveyor must meet the minimum plot requirements of 2.77 plots per hectare. If the woody stems in the plot are of acceptable height as per Table 2 in Section 3.3, they may count towards the stocking requirement for the plot.

A plot will be considered SR if:

- at least one woody stem that meets height requirements is tallied within the boundaries of a 10 m² plot,

A plot will be eligible for an NSR-LIG code if:

- at least one woody stem within the 10 m² plot, and
- below height requirements to be categorized as SR.

A plot will be considered Not Sufficiently Restocked (NSR) if:

- there are no woody stems within the boundaries of a 10 m² plot.

When tallying plots, the surveyor must also total plots based on the composition of each plot, not only its status. For example, a Sufficiently Restocked plot could be stocked with a coniferous tree or a deciduous tree, therefore for greater accuracy, coding information should include a plot status code followed by a species grouping modifier. A plot that is not sufficiently restocked with both a deciduous tree and a shrub would then be listed as, NSR-LIG- DS. For a full list of codes, see Section 4.5 Survey Data Collection.

4.8 Damage and Site Conditions

The extent of damage to acceptable woody plants by insects, disease and animals must be recorded during the Assessment on the Survey Cover Page (Appendix 1). If the source of the damage is not identifiable while in the field, then the surveyor must ensure sufficient photographic evidence is captured to allow investigation later. Space is also provided to record damage due to animals and disease in the comments section of the Tally Card (Appendix 4).

Recording damage and site condition information is very important for determining why a particular area may have failed the stocking standards. If an area is determined to be NS due to animal or disease damage, that area will be eligible for a re-survey provided that the woody vegetation has only incurred damage and not mortality. The second survey on the damaged area must occur in the next growing season.

It is important to consider that areas damaged by animals or disease may still be eligible for NSR-LIG if they still meet the requirements of an acceptable tree. If an area has been attacked by disease or animal and mortality has occurred at levels that make the area NSR and not eligible for NSR-LIG, then a fill plant activity will be necessary. The density from the Monitoring assessment will be determined and the fill plant will be scheduled at a density that would bring the NSR area(s) up to a density of 1600 woody stems/ha with trees.

Below is an example of a fill plant prescription for an area damaged by disease or animal:

EXAMPLE: If the monitoring assessment tree density (SR and NSR-LIG) is 500 woody stems/ha, the fill plant density would be 1100 woody stems/ha. If the NS area is two hectares, a total of 2,200 seedlings would be planted and an additional survey event is not required that year.

When an area is considered NSR as per Section 4.4.2, then the total NSR area will be calculated as follows:

$$(\# \text{ of NSR Areas}) \times 1.5 = \text{NSR Area (ha)}.$$

Documentation of damages, growth-limiting site factors, and invasive/ noxious weed species is highly important to the success of these sites. Whenever deleterious site conditions or noxious weeds are encountered, they must be recorded on the Establishment Survey Summary Sheet. Furthermore, the distribution and density of noxious weeds will be recorded when encountered, and recorded in as much detail as is reasonably possible. Note a few possible dispersion patterns in Figure 1.

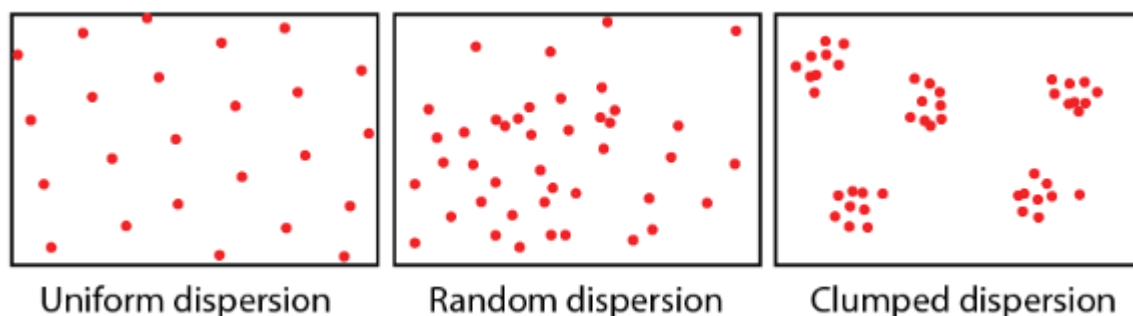


Figure 1. Dispersion patterns

4.8.1 Loss of Afforestation Liability

If any part of the afforestation treatment area encountered during the Monitoring assessment is discovered to have been damaged by forest fire or an additional development (regardless of type), Project Forest will no longer be responsible for the impacted area(s), even if the additional development is a Project Forest initiative. All area(s) impacted by forest fire, insects or industrial development will be removed from the afforestation project area and all pre-determined plot numbers in the impacted area(s) will be recorded on the Survey Cover Page (Appendix 1). These plots will be deleted from the Monitoring assessment and will not be moved or reassigned to other areas of the site.

During the Monitoring assessment if a development area is encountered, the surveyor will document the size and location of the development (only in areas where the development has occurred in the defined project area). This information will then be submitted as part of the Survey Cover Page (Appendix 1) to Project Forest and removed from the project's total area.

4.9 Moving Plots

In the event any portion of the plot falls outside of the defined afforestation area, the surveyor may move the plot up to 20 m in a north, east, south, or west direction to a representative area within the project. If a plot is moved, the surveyor is required to collect a waypoint capturing the latitude and longitude of the new plot location, as well as document and justify the change in plot location in the Comments section of the Tally Card (Appendix 4). The minimum plot spacing will be 25m to provide even coverage throughout the entire area.

4.10 Plots to Delete.

Plots will only be deleted during the Project Forest Afforestation Monitoring Program if part of the afforestation project area has been impacted by forest fire or development. Plots may be moved if they meet the plot moving criteria as per Section 4.6.

4.11 Stocking Status

Based on the results from the assessment stocking status can be SR, NSR-LIG, or NSR. For a plot area to be considered SR, it must meet the minimum stocking (%) requirements as found in . If an area is considered SR, the area will be considered on a trajectory to become a mature forest.

4.11.1 Percent Stocking Calculation

The percent stocking calculation shall be submitted to Project Forest on the Survey Cover Page (Appendix 1). One Afforestation Survey Cover page will be required for the project area and shall include:

- a) Total number of plots to calculate stocking.
- b) Number of SR plots for the area.
- c) Number of under-height plots for the area.
- d) Number of NSR plots for the area.
- e) Number of moved plots with plot name and justification for the plot move.
- f) Total area subtracted from the project area, submitted with a description.

Based on the above values, the Total Stocking (%) shall be calculated as follows for each area:

A plot considered SR will count once towards the Total Tree Stocking (%) of an area, thus Total Tree Stocking (%) shall be calculated by dividing the number of plots considered SR by the total number for plots for the entire area and then multiplying by 100.

If the status of the area is determined to not be SR, the formula will be calculated as follows:

1. Total Potential Stocking = (# of SR plots) + (# of NSR-LIG plots)
2. Total Potential Stocking % = (Total Potential Stocking/ Total number of plots) X 100

If the Total Potential Stocking (%) is less than the minimum stocking (%) requirements, an additional afforestation treatment will be required as per Section 4.9.1.

4.11.2 Site Density – Final Survey

The minimum site density for the project area to be considered SR and on a trajectory to become a mature forest will be 1,600 woody stems/ha. Site density is calculated as follows:

Total woody stems tallied/number of plots x 1000

Example 1:

- Total woody stems tallied is 368
- Total plots is 152
- Site density => $368 \text{ woody stems} / 152 \text{ plots} * 1000 = 2,421 \text{ woody stems/ha}$
- Site meets minimum density requirement no additional work is required.

Example 2:

- Total woody stems tallied is 151
- Total plots is 152
- Site density => $151 / 152 * 1000 = 993 \text{ woody stems/ha}$
- Site does not meet minimum density requirement; a silviculture treatment is required.

When the minimum site density is not met, an additional silvicultural treatment is required. Should a fill plant be the silviculture treatment, the fill plant must bring up the site density to 1,600 stems/ha.

A fill plant tree number calculation example is below:

- Site density = 993 woody stems/ha
- Site area = 55ha
- Density top up calculation => $1,600 \text{ woody stems/ha} - 993 \text{ woody stems/ha} = 607 \text{ woody stems/ha}$
- Tree order calculation => $607 \text{ woody stems/ha} * 55 \text{ ha} = 33,385 \text{ woody stems required.}$

4.12 Outcomes of NSR Areas

An additional afforestation treatment will only be required if an area is determined to be NS. Individual NSR areas will not require an afforestation treatment, they will however be selected as the afforestation treatment areas if the area is determined to be NS. If the stocking status of an area is considered NS, then an appropriate afforestation treatment for the NS areas must be prescribed by the managing regulated professional.

As per Section 1.3 an afforestation treatment is defined as any silvicultural technique used to improve the biomass volume. These treatments include, but are not limited to, mechanical site preparation, vegetation management, Not Sufficiently Restocked 'Let-It-Grow' Status and tree planting. A regeneration survey is not considered an afforestation treatment.

4.12.1 Possible Outcomes for areas considered as NSR.

When an area is classified as NS, Project Forest has the following two options:

1. Re-survey the area classified as NSR with new predetermined plot locations for that area. This additional survey must be completed in the same season as the first survey. If the new survey meets the minimum stocking requirements, then the area will be considered SR and an additional afforestation treatment will not be necessary.
2. Complete a one-time fill plant event of the area classified as NSR. Once the fill plant activity has been completed, the area would then be classified as SR and require no further afforestation treatments or additional Monitoring assessments to confirm stocking status.

If a fill plant is prescribed as the afforestation treatment by the EP, the fill planting density requirements will be followed as per Section 4.9.

For example:

Golden Ranches required a total of 54 plots, 14 of which were NSR and 40 were SR. The total stocking for that area was 74% which is considered NSR. If 14 of the plots in the area were considered NSR, then the total NSR area as per Section 4.5 is 21 ha. If the average density of all the NSR areas was 750 woody stems/ha, then according to Section 4.5 the fill plant prescription would be required to bring up the total density to 1,600 woody stems/ha. A fill plant of 850 woody stems/ha would be required, which would equate to 17,850 seedlings.

5 Reporting

Monitoring assessments conducted on any Project Forest Afforestation Project areas shall be reported to Project Forest within 30 days of completing the field work. A complete and validated monitoring assessment summary sheet (Appendix 6) must accompany all reporting of Monitoring assessments to Project Forest for each area surveyed.

Validated work is work that has been prepared by or reviewed and approved by a regulated professional. The regulated professional who validates work must have done the work, contracted the work, or supervised those who did the work. The validating RP is accountable for ensuring the reporting of the Monitoring assessment is complete, accurate and on time.

See Appendix 7 for an example report.

5.1 Recommendations

Developing recommendations in the reports:

- If the summation of SR and NSR-LIG plots are less than 80% a fill plant will be recommended,
- If an area larger than 1.5 ha is identified as NSR, and
- If any weed concerns are identified, a management strategy between Project Forest and the land owner will be recommended.

5.2 Submission
















The Monitoring assessment submission packages to Project Forest shall include:

- a) Afforestation Survey Reporting Cover Page
- b) Monitoring assessment Finalized Survey Assessment Maps
- c) Monitoring assessment Tally Cards

5.2.1 Map Symbols and Definitions

All maps submitted to Project Forest shall have the applicable information for each area surveyed, as shown in Table 3 and plots shall be illustrated on the map as per Table 4.

Table 4: Depicts symbols to use in final reports submitted to Project Forest

	SR with Acceptable Conifer trees
	SR with Acceptable Deciduous trees
	SR Acceptable Shrubs
	SR with Acceptable Conifer & Deciduous trees
	SR with Acceptable Conifer trees & Shrubs
	SR with Acceptable Deciduous trees & Shrubs
	SR with Acceptable Conifer & Deciduous trees & shrubs
	NSR-LIG with Conifer
	NSR-LIG with Deciduous
	NSR-LIG with Shrub
	NSR-LIG with Conifer & Deciduous
	NSR-LIG with Conifer & Shrubs
	NSR-LIG with Deciduous & Shrubs
	NSR-LIG with Conifer & Deciduous trees & shrubs
	NSR -No Acceptable Woody species present

6 Survey Quality

Project Forest requires the monitoring assessment information to be complete and accurate. The contractor shall ensure quality control systems are developed and utilized. Quality control systems must include surveyor training, field auditing and data validation and records of the training session and attendees must be available to Project Forest upon request. The surveyors shall receive training specific to the Project Forest Afforestation Monitoring Program to ensure appropriate measurements are made and recorded. All records of the training sessions and attendees will be tracked and made available to Project Forest upon request.

Audits of all areas and/or surveyors shall be conducted using check surveys carried out by qualified surveyors. Audits shall focus on areas where the risk of error is highest. The survey contractor will be

required to submit an auditing plan to Project Forest for approval prior to starting the monitoring program field work.

7 Glossary of Terms

Advanced regeneration – a tree that meets all criteria for an acceptable tree, established prior to harvest, will likely be alive at next harvest. (AESRD 2013)

Acceptable tree - An acceptable woody plant is an individual seedling, sucker, coppice, or advanced regeneration that:

- a) Is alive.
- b) Is an acceptable tree or woody plant.
- c) Originated from seed, suckering or coppice.
- d) Achieved the minimum coniferous or deciduous height requirement at time of survey (Table 2 in 3.5).

In addition to the criteria above, coniferous tree species shall have:

- a) A well-defined stem
- b) Two or fewer stems originating at the base of the tree.
- c) White spruce and balsam fir trees shall have a live-crown ratio of 0.33 or greater.

Assessment plot – assessment plots occur within the boundaries of a 10 m² (1.78 m horizontal radius) plot at the predetermined plot location provided to the surveyor. Within this boundary, the presence of acceptable coniferous, deciduous, and woody plants will be recorded on the Monitoring assessment Tally Sheet.

Coppice – a natural regeneration process like suckering where the seedling or sapling regenerates from the cut or damaged stump. Several healthy stems may be observed coming from one stump. Found primarily in birch, but also in other deciduous species. (AESRD 2013)

Coniferous trees – needle-leaved trees which produce cones (includes larch spp.) (AESRD 2013)

Deciduous trees – broadleaved tree species that lose their leaves in the fall. (AESRD 2013)

Diameter at Breast Height (DBH) – Tree diameter at 1.35 m from the ground

Growing Season - the period between June 20 and August 1 annually

Herbaceous plant – plants that die back to ground level at the end of each season. They have no above ground, persistent woody stem and may be annual, biennial or perennial.

LIG (Let-It-Grow) – an afforestation treatment in cases where information has been collected for under-height trees present at the time of an Monitoring assessment.

Live crown ratio - the proportion of total stem length that is covered by living branches. It is expressed as a percentage or decimal of the total tree height. Live crown ratio is a useful indicator of the status of the tree in relation to vigor, photosynthetic leaf area, and is inversely related to stocking density. It is assumed that live crown ratio must be greater than 0.3 (30%) for the tree to release well.

Natural Infrastructure - nature-based solutions that promote, use, restore or emulate natural ecological processes

NSR (Not Sufficiently Restocked) - A plot will be considered NSR if it fails to meet the criteria set out Section 4.4.1

NSR Area Calculation - When an area is considered NSR as per Section 4.4.3, then the total NSR area for that CGS will be calculated as follows:

NSR Area (ha) = (# of NSR Areas) x 1.5

NSR-LIG (Not Sufficiently Restocked – Let-It-Grow) - For the purposes of Total Stocking percent calculations, LIG plots will be referred to as Not Sufficiently Restocked – Let-It-Grow (NSR-LIG). When a plot meets the NSR-LIG requirements it is still considered NSR, however if the stocking percentage of all the NSR-LIG

plots increases the overall stocking of a CGS as per the instructions in Section 4.9.1 of this document then further afforestation treatments are not necessary.

Quality control systems - surveyor training, field auditing and data validation and records of the training session and attendees will be provided to Project Forest.

Regulated Professional- A members of a professional regulatory organization of Alberta. This includes Alberta Institute of Agrology, Alberta Association of Forest Management Professionals, and the Alberta Society of Professional Biologists.

Afforestation technique - defined as any silvicultural technique used to improve the biomass volume. These treatments include, but are not limited to, mechanical site preparation, vegetation management, Not Sufficiently Restocked 'Let-It-Grow' (NSR-LIG) Status and tree planting. A regeneration survey is not considered an afforestation treatment.

Seedling – a tree that meets all criteria for an acceptable tree that established post-harvest. (AESRD 2013)

Shrub – distinguished from a tree by its multiple stems and shorter height, usually under 6 m (20 feet) tall. Some species may grow into either trees or shrubs depending on growing conditions.

Silviculture - the theory and practice of controlling the establishment, growth, composition, health, and quality of forests to meet diverse management objectives, needs and values (UofA 2024)

Stocking % - the sum of all satisfactorily restocked plots on the opening, divided by the total number of valid plots, multiplied by 100 to express term as a percentage. (AESRD 2013)

Sucker – new growth arising from along the root systems of trees and shrubs.

SR (Sufficiently Restocked) – plots will be considered SR if it meets the criteria set out in Table 1 in Section 4.4.1

Tally card – card used during plant surveys to track the number of species of each target species on site.

Under-height trees – a tree that has all the characteristics of an acceptable tree except that the coniferous, deciduous or shrub minimum tree height requirements are not met. The minimum height requirements for under-height trees are 10 cm, if coniferous, 30 cm, if deciduous and 10cm for shrubs. (AESRD 2013)

Woody plants – plants that produce wood as its structural tissue.

8 List of References

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Appendix 1: Survey Cover Page

Afforestation Survey Cover Page				
Project Site:				
Surveyor ID 1		Total Plots		
Surveyor ID 2		Survey Date(s)		
Stocking Calculations				
Type of Plot	# of Plots	% of Plots	Meet Final Criteria	% of Plots
SR with Acceptable Conifer trees				
SR with Acceptable Deciduous trees				
SR Acceptable Shrubs				
SR with Acceptable Conifer & Deciduous trees				
SR with Acceptable Conifer trees & Shrubs				
SR with Acceptable Deciduous trees & Shrubs				
SR with Acceptable Conifer & Deciduous trees & shrubs				
NSR-LIG with Conifer				
NSR-LIG with Deciduous				
NSR-LIG with Shrub				
NSR-LIG with Conifer & Deciduous				
NSR-LIG with Conifer & Shrubs				
NSR-LIG with Deciduous & Shrubs				
NSR-LIG with Conifer & Deciduous trees & shrubs				
NSR -No Acceptable Woody species present				
Acceptable Stocking Summary				
Plot Stocking Status	# of Plots	% of Plots		
SR Plots				
NSR-LIG Stocking				
NSR (excludes NSR-LIG)				
Total Stocking (SR + NSR-LIG):				
Herbaceous Vegetation Observed on Site			Noxious Weeds	
Project Comments (put additional comments on the back):				

Appendix 2: Assessment Summary Sheet

Project Forest Monitoring Assessment Summary Sheet

Applicability: Trajectory of re-wilding success

Landowner

Address/ Location

Year Planted

Assessment #:

First and last name of qualified surveyors (or as attached):

Disturbance Areas and area to be removed from reforestation project area(s):

Summary of Preventive and Corrective Actions- for which regeneration survey audits were completed:

Declaration:

I do hereby declare that this submission:

- a) Adheres to all components of the required Quality Assessment/Quality Control program, and;
- b) Includes only surveys that have been conducted according to the methods detailed in the Project Forest - Golden Ranches Reforestation Monitoring Program, and;
- c) Complies with the requirements for report timing and format.

Validated/Signed by:

Registration # (if applicable)

Date:

Print Name:

Company:

Appendix 3: Required Equipment

- Survey lath, spray painted
- Winter ribbon
- Permanent marker
- Tape measure
- GPS
- Field maps
- Camera
- Data collection application
- Plant identification book
- Weed identification book

Appendix 4: Survey Tally Card

[illegible]

Appendix 5: Caliper Tree Assessment Sheet

Tree Health Assessments									
Project Site:									
Surveyor ID 1					Total Trees:				
Surveyor ID 2					Date:				
Tree #		Tree Species				Age:			
DBH:		# of trunks		Height					
Foliage Color				Vigor					
Growth Obstruction:				Major Pests					
Comments									
Tree #		Tree Species				Age:			
DBH:		# of trunks		Height					
Foliage Color				Vigor					
Growth Obstruction:				Major Pests					
Comments									
Tree #		Tree Species				Age:			
DBH:		# of trunks		Height					
Foliage Color				Vigor					
Growth Obstruction:				Major Pests					
Comments									
Tree #		Tree Species				Age:			
DBH:		# of trunks		Height					
Foliage Color				Vigor					
Growth Obstruction:				Major Pests					
Comments									
Tree #		Tree Species				Age:			
DBH:		# of trunks		Height					
Foliage Color				Vigor					
Growth Obstruction:				Major Pests					
Comments									
Additional Comments:									

Appendix 6: All Project's Summary Sheet

Afforestation Survey Cover Page

[illegible]

Appendix 7: An Example Monitoring Report

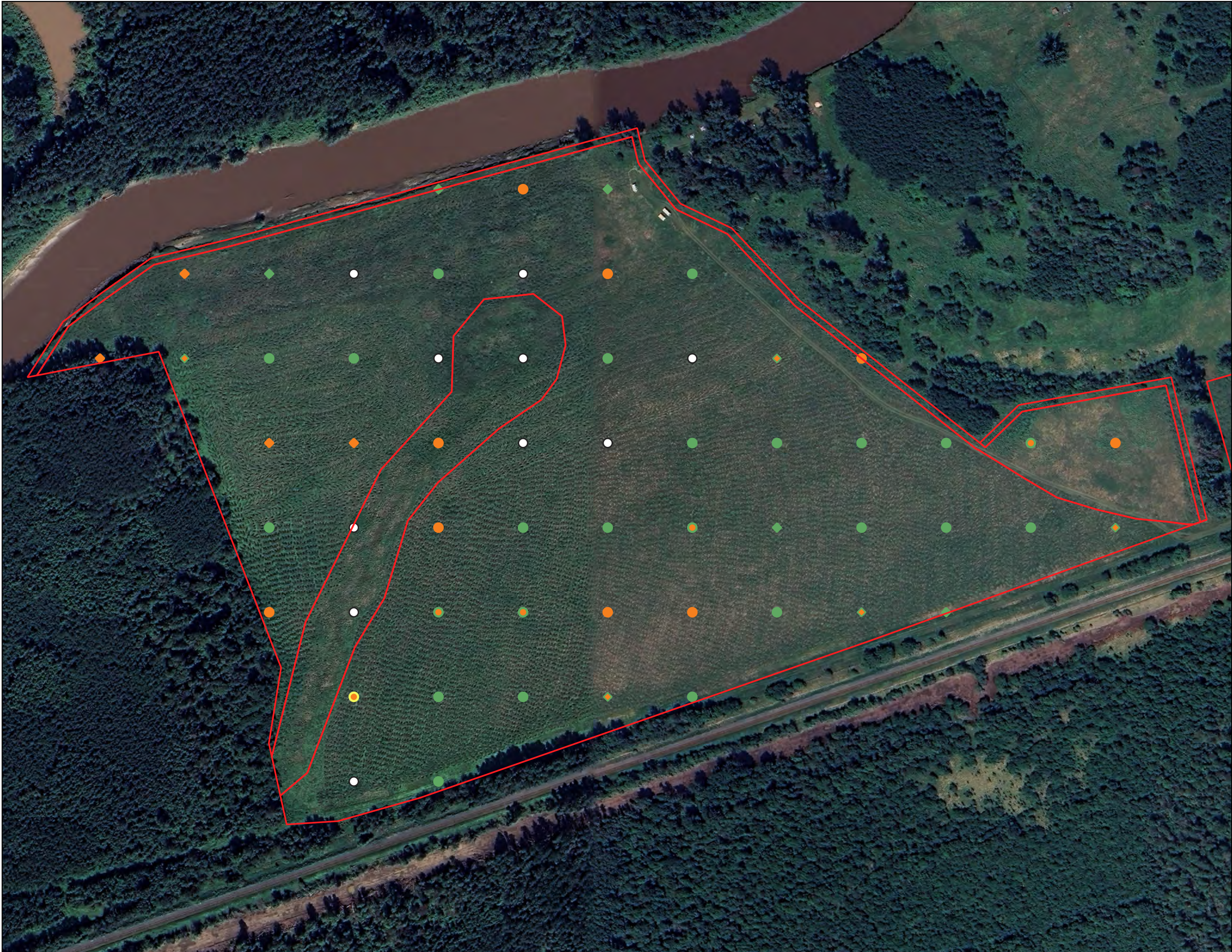
Afforestation Survey Cover Page				
Project Site: Swan River First Nation				
Survey Date(s)	October 19, 2023	Total Plots	138	
Stocking Calculations				
Type of Plot	# of Plots	% of Plots	Meet Final Criteria	% of Plots
SR with Acceptable Conifer trees	29	29.6	2	2.0
SR with Acceptable Deciduous trees	0	0.0	0	0.0
SR Acceptable Shrubs	15	15.3	2	0.0
SR with Acceptable Conifer & Deciduous trees	1	1.0	1	1.0
SR with Acceptable Conifer trees & Shrubs	10	10.2	4	4.1
SR with Acceptable Deciduous trees & Shrubs	4	4.1	1	1.0
SR with Acceptable Conifer & Deciduous trees & shrubs	1	1.0	0	0.0
NSR-LIG with Conifer	9	9.2	N/A	N/A
NSR-LIG with Deciduous	0	0.0	N/A	N/A
NSR-LIG with Shrub	7	7.1	N/A	N/A
NSR-LIG with Conifer & Deciduous	0	0.0	N/A	N/A
NSR-LIG with Conifer & Shrubs	9	9.2	N/A	N/A
NSR-LIG with Deciduous & Shrubs	0	0.0	N/A	N/A
NSR-LIG with Conifer & Deciduous trees & shrubs	0	0.0	N/A	N/A
NSR -No Acceptable Woody species present	13	13.3	N/A	N/A
Acceptable Stocking Summary				
Plot Stocking Status	# of Plots	% of Plots		
SR Plots	60	61.2		
NSR-LIG Stocking	25	25.5		
NSR (excludes NSR-LIG)	13	13.3		
Total Stocking (SR + NSR-LIG):	85	86.7		
Herbaceous Vegetation Observed on Site			Noxious Weeds	
Dandelions	Cinquefoil		Canada thistle	
Grass spp.	Fern sp			
Common Yarrow	Lambs quarters			
Avens	Wild mustard			
Plantain	Hemp nettle			
Tansy mustard	Goldenrod			
Stinkweed				
Dock sp.				
White clover				
Stinging nettle				
<u>Project Comments:</u> The project is growing well. Some of the woody stems within plots are starting to grow past project milestone heights.				

Assessment Survey Tally Card

Plot	Tree & Shrub Stocking												Status	Tallest in Plot		Risk factors		
	Acceptable		Acceptable		Acceptable		Acceptable		Under Height		Under Height			Species	Height (cm)	Evidence of: Damage, Disease, Competition,		Noxious Weeds
	Species	Number	Species	Number	Species	Number	Species	Number	Species	Number	Species	Number						
Sr_01	Sw	1											SR	Sw	36			
Sr_02													NSR					
Sr_03	Bw	1	Raspberry	2					Sx	3			SR	Bw	90			
Sr_04	Tx	2							Sx	3	Aw	4	SR	Tx	112			
Sr_05	Tx	1											SR	Tx	127			
Sr_06									Sw	2	Raspberry	1	NSR-LIG	Sw	23			
Sr_07	Sw	1											SR	Sw	36			
Sr_08_new									Sw	1			NSR-LIG	Sw	29			
Sr_09									Pl	1	Raspberry	1	NSR-LIG	Pl	25			
Sr_10	Tx	1											SR	Tx	76			
Sr_11	Raspberry	10							Sw	1	Raspberry	3	SR	Raspberry	62			
Sr_12	Raspberry	2											SR	Raspberry	62			
Sr_13	Tx	2	Raspberry	1	Sx	1							SR	Tx	107			
Sr_14	Tx	2	Raspberry	2									SR	Tx	130			
Sr_15													NSR					
Sr_16	Raspberry	6							Raspberry	9			SR	Raspberry	134			
Sr_17	Sw	1							Sx	10			SR	Sw	30			
Sr_18													NSR			Thick grass thatch		
Sr_19	Raspberry	1							Raspberry	2			SR	Raspberry	68			
Sr_20	Tx	1											SR	Tx	88			
Sr_21	Sw	1											SR	Sw	39			
Sr_22	Pl	1	Raspberry	1					Raspberry	3			SR	Raspberry	73			
Sr_23									Sw	1			NSR-LIG	Sw	27			
Sr_24	Sw	1							Sx	3			SR	Sw	36			
Sr_25	Sw	2											SR	Sw	30			
Sr_26	Sw	1											SR	Sw	34			
Sr_27									Sw	1	Sx	1	NSR-LIG	Sx	32			
Sr_28	Honeysuckle	10											SR	Honeysuckle	82			
Sr_29	Sw		Snowberry	10									SR	Honeysuckle	84			
Sr_30	Pl	1											SR	Pl	34			
Sr_31	Pl	1											SR	Pl	30			
Sr_32	Pl	2							Sx	1	Raspberry	3	SR	Pl	44			
Sr_33	Pl	1							Aw	1	Sx	1	SR	Pl	33			
Sr_34													NSR					
Sr_35													NSR					
Sr_36	Raspberry	1											SR	Raspberry	66			
Sr_37									Raspberry	1			NSR-LIG	Raspberry	43			
Sr_38									Sx	1			NSR-LIG	Sx	9			
Sr_39									Raspberry	1			NSR-LIG	Raspberry	18			
Sr_40									Raspberry	3	Sw	1	NSR-LIG	Sw	21			
Sr_41	Sw	1											SR	Sw	48			
Sr_42	Sw	1											SR	Sw	42			
Sr_43													NSR			Heavy thistle competition		
Sr_44													NSR			Heavy grass competition		

Plot	Tree & Shrub Stocking												Status	Tallest in Plot		Risk factors		
	Acceptable		Acceptable		Acceptable		Acceptable		Under Height		Under Height			Species	Height (cm)	Evidence of: Damage, Disease, Competition,	Noxious Weeds	
	Species	Number	Species	Number	Species	Number	Species	Number	Species	Number	Species	Number						
Sr_45	Pl	1											SR	Pl	31			
Sr_46													NSR			Heavy grass & thistle competition		
Sr_47									Sw	1	Sx	1	NSR-LIG	Sw	16			
Sr_48	Sx	10	Honeysuckle	10					Sw	1			SR					
Sr_49	Sw	1							Pl	1			SR	Sw	36			
Sr_50	Raspberry	3	Wild Rose	2									SR	Raspberry	81			
Sr_51													NSR			Heavy grass & thistle competition		
Sr_52	Sw	1											SR	Sw	31			
Sr_53													NSR			Heavy thistle competition		
Sr_54									Sw	1			NSR-LIG	Sw	28			
Sr_55									Raspberry	3			NSR-LIG	Raspberry	39			
Sr_56									Sw	1			NSR-LIG	Sw	24			
Sr_57	Sw								Raspberry	1			SR	Sw	48			
Sr_58									Sw	1			NSR-LIG	Sw	22			
Sr_59													NSR				Canada thistle	
Sr_60	Pl	1											SR	Pl	36			
Sr_62									Raspberry	1			NSR-LIG	Raspberry	20			
Sr_63	Pl	1											SR	Pl	37			
Sr_64	Sw	1							Sw	1			SR	Sw	1			
Sr_65													NSR			Heavy thistle & grass competition		
Sr_66													NSR					
Sr_67	Raspberry	1							Raspberry	3	Pl	1	SR	Raspberry	60			
Sr_68									Sw	1			NSR-LIG	Sw	29			
Sr_69									Raspberry	6	Sw	1	NSR-LIG	Raspberry	30			
Sr_70									Raspberry	3			NSR-LIG	Raspberry	25			
Sr_71	Sw	1											SR	Sw	34			
Sr_72									Sw	1			NSR-LIG	Sw	19			
Sr_73									Raspberry	2	Pl	1	NSR-LIG	Raspberry	22			
Sr_74									Sw	1	Raspberry	1	NSR-LIG	Raspberry	52			
Sr_75									Raspberry	1			NSR-LIG					
Sr_76	Pl	1							Raspberry	1			SR	Pl	40			
Sr_77	Pl	3											SR	Pl	48			
Sr_78	Tx	3											SR	Tx	79			
Sr_79	Sw	3							Sx	6	Aw	2	SR	Aw	36			
Sr_80	Snowberry	50							Sw	1			SR		102			
Sr_81	Honeysuckle	10											SR	Honeysuckle	81			
Sr_82	Sx	3	Honeysuckle	10									SR	Sx	207			
Sr_83	Honeysuckle	10											SR	Honeysuckle	123			
Sr_84	Sw	3	Wild Rose	3	Honeysuckle	10							SR	Wild Rose	160			
Sr_85	Sw	5	Honeysuckle	10									SR	Honeysuckle	144			
Sr_86	Pb	9	Sx	3									SR	Pb	203			
Sr_87	Honeysuckle	10	Bw	1	Raspberry	2	Twinberry	1	Sw	1			SR	Bw	102			
Sr_88	Sx	10	Aw	1	Honeysuckle	10							SR	Sx	202			
Sr_89	Honeysuckle	10	Raspberry	1	Sx	1							SR	Sx	170			

Plot	Tree & Shrub Stocking												Status	Tallest in Plot		Risk factors		
	Acceptable		Acceptable		Acceptable		Acceptable		Under Height		Under Height			Species	Height (cm)	Evidence of: Damage, Disease, Competition,		Noxious Weeds
	Species	Number	Species	Number	Species	Number	Species	Number	Species	Number	Species	Number						
Sr_90	Sw	1	Saskatoon	3	Pb	1	Snowberry	100	Sw	1	Raspberry	2	SR	Saskatoon	176			
Sr_91									Sw	1			NSR-LIG	Sw	25			
Sr_92	Raspberry	2	Sw	1	Snowberry	10							SR	Raspberry	110			
Sr_93_New	Sw	1							Raspberry	2	Snowberry	3	SR	Raspberry	45			
Sr_94	Tx	1	Raspberry	4									SR	Raspberry	145			
Sr_95									Sw	1			NSR-LIG	Sw	22			
Sr_96	Raspberry	6	Snowberry	10					Sw	1			SR	Raspberry	221			
Sr_97	Wild Rose	1	Sw	1	Snowberry	10							SR	Wild Rose	107			
Sr_98	Pb	2	Snowberry	10									SR	Honeysuckle	104			



Swan River - Map 1
Survey Plot Status
Fall 2023









Project Partners:



Legend

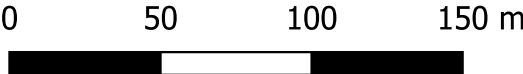
 Project Boundary

Plot Status

-  NSR
-  NSR-LIG-C
-  NSR-LIG-CS
-  NSR-LIG-S
-  SR-C
-  SR-CS
-  SR-DS
-  SR-S



Date Created: 2023-11-15
Project CRS: EPSG:3400
Source: Google Satellite
Created By: Tree Time Services Inc.
Scale: 1:2,500





Swan River - Map 2
Survey Plot Status
Fall 2023








Project Partners:

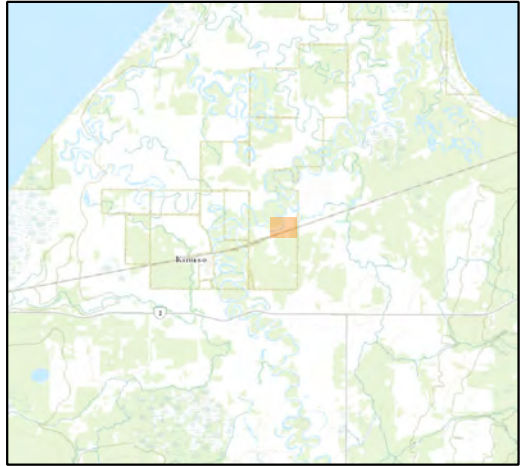


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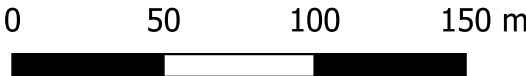
 Project Boundary

Plot Status

-  NSR
-  NSR-LIG-C
-  NSR-LIG-CS
-  NSR-LIG-S
-  SR-C
-  SR-CS
-  SR-S



Date Created: 2023-11-15
Project CRS: EPSG:3400
Source: Google Satellite
Created By: Tree Time Services Inc.
Scale: 1:2,500





Swan River - Map 3
Survey Plot Status
Fall 2023

Project Partners:

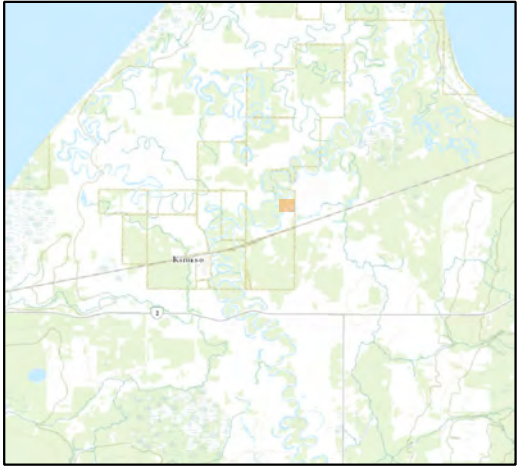


Legend

Project Boundary

Plot Status

- NSR-LIG-C
- SR-C
- SR-CD
- SR-CDS
- SR-CS
- SR-DS
- SR-S



Date Created: 2023-11-15
Project CRS: EPSG:3400
Source: Google Satellite
Created By: Tree Time Services Inc.
Scale: 1:1,500

0 30 60 90 m



Site Photos

Plot SR_25



Plot SR_43



Plot SR_63



Plot SR_73



Plot SR_85



Plot SR_91



Project Forest Monitoring Assessment Summary Sheet

Project Name	Swan River First Nation
Applicability:	Trajectory of re-wilding success
Landowner:	Swan River First Nation
Site Location:	55.340255,-115.398149
Year Planted:	2021
Assessment #:	2

First and last name of qualified surveyors (or as attached):

Maclean Forbes

Disturbance Areas and area to be removed from afforestation project area(s):

No areas will be removed from the project area.

As per the Project Forest Monitoring Program, all area(s) impacted by forest fire, insects or industrial development will be removed from the afforestation project area. No such disturbance were recorded.

Summary of Preventive and Corrective Actions:

It is recommended that:

1. Leave the NSR-LIG areas, as there is a reasonable likelihood exists that a sufficient percentage of NSR-LIG sites will become SR sites within the coming years.
2. There is Canada thistle present. Project Forest should discuss this with Swan River First Nation and determine the best approach for weed management on the site.

Declaration:

I do hereby declare that this submission:

- a) Adheres to all components of the required Quality Assessment/Quality Control program, and;
- b) Includes only surveys that have been conducted according to the methods detailed in the Project Forest - Golden Ranches Reforestation Monitoring Program, and;
- c) Complies with the requirements for report timing and format.

Validated/Signed by:



Registration #

1838

Date:

February 2, 2024

Print Name:

Lindsay Dent

Company:

Tree Time Services Inc.