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From Plantations to Forests: Our Experience Trialling Five Assisted Natural Regeneration Techniques in the Wabanaki Forest Region.

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Background

The Government of Canada launched the Two Billion Trees (2BT) program in 2021. As an organization founded by tree planters with roots in Canada's Wabanaki (Acadian) forest, the program resonated with some of our core ideas; that forests are one of our most effective climate solutions, and that there is great ecological opportunity to put that solution into practice at scale in Canada.

Community Forests International (Community Forests) has been planting and restoring forests since 2013, but we have significantly expanded that work since receiving 2BT funding in 2022. Since then, we have planted close to 1.4 million trees, more than double the approximately 600,000 trees we planted between 2014 and 2022. By 2031, we aim to restore the Wabanaki forest by planting over 3 million native trees across more than 1,500 hectares of degraded forest.

The degraded forests that Community Forests acquires for restoration have often been recently clearcut by commercial forestry operators. By permanently protecting them, we remove those forests from the intensive harvesting cycle which dominates the timber industry in the provinces where we work – New Brunswick and Nova Scotia.

But planting at this scale raises important questions; Which tree species will help our plantations behave more like natural forests? Where will those seedlings come from? And how do we ensure that the trees we plant today survive and continue providing benefits as the climate changes?

Among the barriers to the implementation of the 2BT program was a limited supply of seedlings. When local nurseries cannot produce enough diverse, native stock, implementing partners have to rely on more readily available commercial timber species. Over time, this can shift restoration efforts towards monoculture plantations.

When forests are simplified (dominated by very few species, trees of a similar age, or species that perform similar ecological functions), they tend to support less wildlife and are more vulnerable to droughts, pests, disease, and wildfire; threats that will increase due to climate change.

Fortunately, there are practical approaches that can help plantations develop into forests that function more like natural ecosystems over time.

Assisted Natural Regeneration

In 2024, Community Forests launched a two-year project to trial several Assisted Natural Regeneration (ANR) techniques as one avenue to mitigate challenges identified in the 2BT program.

ANR techniques focus on working with the trees that are already growing back naturally after a forest has been harvested by **encouraging success of the natural seedlings best suited to the type of forest we want to see in the future.** Community Forests restores the forests under our care with future **climate-resilience, carbon storage** and **biodiversity** in mind.

In practice, that means that once a clearcut comes into our care, we assess what kind of forest would naturally grow there over time, and what future forest condition will best help it withstand a changing climate. We implement techniques that will help accelerate and guide the development of the forest along towards that condition.

Planting many different types of native trees that scientific modelling tells us will do well as the climate changes (also known as "climate-adapted" trees) is one way we support our restoration forests to grow back healthier.

We do this because, although forests do grow back on their own after intensive harvesting, they may not always do so in a way that best prepares them for the future climate. Often, the harvested site is so damaged from soil depletion and the use of heavy machinery that it can take a very long time for the forest to reach a more climate-resilient or biodiverse condition without some help.

ANR techniques complement our regular tree planting efforts. While planting adds trees to degraded sites, ANR focuses on increasing wild seedling establishment and growth.

By implementing ANR techniques alongside tree planting, we can work with the billions of local seedlings that naturally grow each year. Supporting these wild seedlings helps the forest become more diverse and resilient over time, while easing pressure on the limited supply of nursery-grown trees.

In this case study, we share our experience trialling five different ANR techniques:

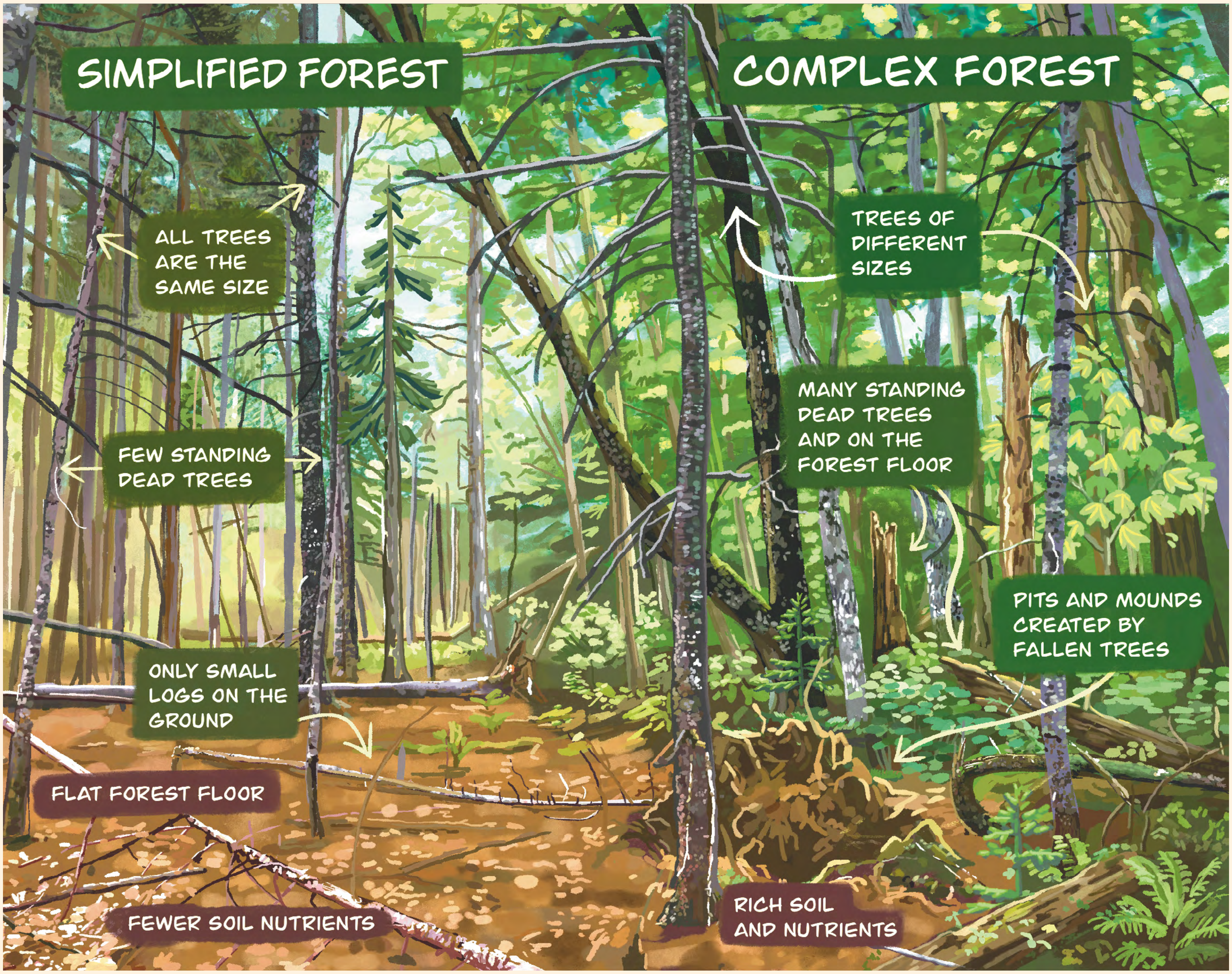
- **Climate-focused manual weeding:** removing competing trees to free up resources like light and nutrients for better-suited trees to thrive.
- **Enrichment planting:** adding extra trees to strategic locations on a regenerating site to increase the number and variety of species growing there.
- **Seedling protection:** installing shelters or guards to protect selected young trees, whether naturally grown or planted, while they grow.
- **Seed collection:** gathering seeds from local, native trees in mature forests to plant species that are well adapted to the area.
- **Direct seeding:** planting seeds straight into the soil instead of growing seedlings in nurseries and transplanting them later.

These trials are in their very early stages, and concrete results will require long-term monitoring. Our hope is that with funding and technical support, these innovative approaches could help achieve better restoration outcomes, at scale, without having to exclusively rely on nursery-grown seedlings and conventional mass planting methods.

White Pine

Looking Beyond

While the 2BT program is no longer accepting new applications, existing agreements will be honoured. There is important work underway, and there is still time to strengthen implementation. We hope the lessons shared here can help organizations navigate implementation of their projects, and continue to inform restoration efforts for years to come. Across New Brunswick and Nova Scotia, a broad and overlapping coalition of communities, landowners, nonprofits, and forest professionals remain committed to restoring the Wabanaki forest. We have tried to reflect some of that work here, along with practical insights from approaches we have trialled. We look forward to publishing further results from these trials over the years.



When we plant and restore forests, we use techniques so that they eventually look more like the forest depicted on the right. Fun fact: this illustration is based on a real photo taken by one of our staff members on the boundary between a forest under our care (on the right) and a degraded forest (on the left).

Five ANR Trials

Manual Weeding

What we tried:

We removed competing trees around desirable regenerating species within a failed spruce plantation at our Jungle Road restoration forest.

How:

The spruce trees in this plantation were planted about ten years ago by the previous landowners, before we protected the Jungle Road forest for restoration. Many of the planted spruce did not establish well because they were overtaken by fast-growing trees like trembling aspen, bigtooth aspen and birches (see Appendix A for common and Latin names).

Although these fast-growing species can help a forest get started, they can quickly become dominant and crowd out other important species. These fast-growing species also tend to be those that are most vulnerable to the effects of climate change, which leaves the forest less resilient. To prevent vulnerable species from dominating, we removed some trees to create more light and space for slower-growing trees that are better suited to future climate conditions. By not removing all of the trees, we also left some shade in place to stop new fast-growing and shade-intolerant trees from taking over again.

We focused on keeping trees which are more rare or resilient like white ash, red oak, yellow birch, red maple, and white pine, although which trees we prioritize where depends on the specific conditions of the site. The trees we cut were left on the ground to break down naturally, returning nutrients to the soil and helping create a more varied forest floor.

Why:

Many of the forests we restore were recently clearcut. When the canopy is removed (through harvesting), more light, moisture, and nutrients become available. After harvesting, natural fast-growing trees that thrive in open, sunny conditions can quickly take over - this is not necessarily a bad thing. Sometimes we even plant some of these fast-growing species ourselves because they can survive harsh clearcut conditions and help other trees get started. However, these "early-successional" species tend to be more vulnerable to climate change and they often outcompete slower-growing trees, including many that are better suited to future climate conditions.

At that point, we have a choice: we can allow natural competition to slowly shape the forest, or we can take a more active role in guiding that process.

We choose to support the trees that are likely to better withstand future climate conditions by removing some of the competition around them. In high-production timber forestry, this is often done with herbicides. We rely instead on using manual approaches such as spacing saws and implementing various thinning interventions. Even though new competitors will eventually grow back, intervening early gives rare or ecologically-important trees a better chance to survive.

Over time, we expect that this approach will increase the share of climate-adapted trees in the forest. We also expect stronger growth from the trees we support, which should improve long-term carbon storage. As the forest develops, it should also become more varied, with different tree heights, species and densities across the site, which provide improved habitats for biodiversity.

A long-term scientific study in Quebec followed a young black spruce plantation for 24 years and found that trees that received early manual tending had larger diameters, taller heights, larger crowns and showed higher survival rates than untreated trees. [1]

What we learned:

Climate-focused weeding requires specialized skills, and that expertise can be hard to find. Paying for this work can also be challenging. In New Brunswick and Nova Scotia, government subsidies exist for activities like manual weeding, but they were mainly designed for timber production rather than climate or biodiversity goals. This means we often have to fit our restoration work into rigid funding systems that were not built for it, which can be difficult.

Outside of silviculture programs, it can be difficult to secure funding for work that involves cutting some trees, even when that cutting improves the long-term health of the forest. Part of the challenge is that the harvested wood is often of low value, because we focus on removing poor quality trees to improve the remaining forest. We are occasionally able to sell the wood harvested during these interventions to offset some of the costs of later planting. Barriers to making these interventions financially feasible include a lack of markets for low-value wood products, and a lack of incentive programs that value non-timber focused forest care activities like the ones we implement.

1 Cyr, G., & Thiffault, N. (2009). Long-term black spruce plantation growth and structure after release and juvenile cleaning: A 24-year study. The Forestry Chronicle, 85(3), 417–426. https://doi.org/10.5558/tfc85417-3

Enrichment Planting

What we tried:

We planted 10,000 red oak, white pine and red spruce seedlings in parts of our Jungle Road restoration forest to increase the variety of species on that site.

How:

We chose three areas where we felt the forest would benefit from adding more trees better suited to the specific site and a changing climate. The first site was a former clearcut which was then planted with black spruce ten years ago. It had very little species diversity. There, we introduced red oak, a tree that can handle drier soils and is expected to adapt well as the climate changes, to complement the black spruce and improve the overall mix of species.

The second area was a more recent clearcut. Red oak was already re-growing naturally on this site, but only in scattered patches and competing with early-successional species. We planted more red oak to strengthen its presence and prevent it from being crowded out. By increasing its presence early on, we improve the balance of species as the forest matures.

The third site was an older Norway spruce plantation, first planted thirty years ago. After the property came into our care, we removed some of the spruce to create small gaps to let in light and make space for new trees. In those gaps, we planted red oak, white pine and red spruce to help the forest transition more rapidly towards a diverse and climate-resilient species mix. Many of the red oak were then protected with tree tubes to protect them from hungry deer and moose (see Seedling Protection). Some of the spruce we cut were sold to offset some of the costs of the later planting.

Red Oak

A four-year study in the Penobscot Experimental Forest, located in the Wabanaki forest region, found that planting red spruce successfully reintroduced the species to a site where it had been absent.[2]

Why:

Sometimes forests do not recover well on their own after harvesting. Clearcutting can disturb the soil and remove features that help forests regrow, like fallen logs, tree seeds, natural shade, and the naturally uneven shape of the forest floor. Shade is especially important for many of the hardwood and climate-adapted species we want to restore, which are often hard to source from nurseries. As a result, some sites can become dominated by tree species that are not well prepared for the future climate, or simply lack overall species diversity. Enrichment planting is one way to improve the mix of species and speed up the transition to a more resilient forest.

Our intervention in the Norway spruce plantation was a special case. Unlike the other sites, it was an older plantation filled with Norway spruce, a species that wouldn't naturally occur in the Wabanaki forest and was introduced for timber production. Because most trees in this plantation were of the same age and (non-native) species, this site was less diverse and more vulnerable to wildfires, pests, and disease. Large areas of Atlantic Canada are covered by similar plantations, and many landowners are looking for ways to restore them to more resilient conditions. By cutting some of the spruce trees but leaving others, we created space to enrichment plant new trees while also letting some of the existing spruce stay (for now) and perform the important ecological function of storing carbon. Although the long-term benefits of enrichment planting will take years to evaluate, we expect it will increase species diversity and strengthen the quantity of red oak in the future canopy.

What we learned:

We found that enrichment planting should not be thought of as a standalone activity, but something we can do alongside other practices to improve the mix of species in the forest and ultimately improve its climate-resilience. In this case, enrichment was carried out alongside the creation of gaps in the canopy where the enrichment seedlings could be planted, and installing seedling protection to protect them from deer.

We also learned that the approach can look different depending on the site. The right species and strategy depend on the history of the land, the trees already growing there and the expected future climate conditions. As a result, enrichment planting requires skilled crews who can make such decisions on the site. This can make it more expensive than standard planting, particularly when planting more expensive hardwood species that are less common in commercial nurseries. Partnering with a local producer helped reduce some of those costs for us.

2 Kenefic, L. S., Bataineh, M., Wilson, J. S., Brissette, J. C., & Nyland, R. D. (2014). Silvicultural rehabilitation of cutover mixedwood stands. Journal of Forestry, 112(3), 261–271. https://doi.org/10.5849/jof.13-033

Seedling Protection

What we tried:

We installed tree tubes to protect naturally regenerating or planted seedlings of high ecological or climate value from being grazed (or "browsed") by deer and moose.

How:

We installed 2,000 tree tubes at our Center Village and Jungle Road restoration sites, prioritizing sugar maple, red maple, and red oak for protection. After evaluating available options, we chose plastic tree tubes for affordability and availability, and fibreglass stakes for their light weight and durability.

A two-year study in New Brunswick found that fencing newly planted seedlings increased their survival to 90% compared to just 43% for unprotected seedlings.[3] Similarly, research in the Penobscot Experimental Forest showed that while enrichment planting successfully introduced new species, those gains were completely lost in areas with heavy deer browsing.[4]

Tree tubes installed in the Norway spruce plantation in our Jungle Road demonstration forest to protect growing seedlings from deer and moose browse.

3 Ma, X. (2019). Early survival and growth of planted hardwoods in the Acadian Forest (Master's thesis, University of New Brunswick). UNB Scholar Research Repository. https://unbscholar.lib.unb.ca/handle/1882/14466

4 Kenefic, L. S., Bataineh, M., Wilson, J. S., Brissette, J. C., & Nyland, R. D. (2014). Silvicultural rehabilitation of cutover mixedwood stands. Journal of Forestry, 112(3), 261–271. https://doi.org/10.5849/jof.13-033

Why:

When important species are regularly eaten by wildlife, it can undermine restoration efforts. Tree tubes create a physical barrier around young hardwood trees during their most vulnerable years so they have a better chance to establish. Some tree tubes also claim to create a greenhouse-like effect that accelerates growth, although we did not test this ourselves.

Over time, we expect that protecting these seedlings will ultimately lead to a greater species diversity in the forest, as the species we protected will have a better chance to become established and survive.

What we learned:

In practice, using tree tubes involved balancing several trade-offs. We found that to be effective protection from deer and moose, tubes needed to be at least 2 m (6 feet) tall. Many locally available products are designed for nursery use and are not sold at heights over 1.3 m (4 feet), or become significantly more expensive at taller heights.

Buying these materials can also be complicated. We operate at a scale that is too large to rely on local retail orders, but too small to easily access bulk commercial pricing and shipping. Cost becomes an important consideration; when a hardwood seedling costs only a few dollars to plant, installing a much more expensive tree tube requires a clear justification.

Installing tubes also takes time and effort. Materials must be carried into the forest, packaging must be taken back out, and how quickly tubes can be installed depends on terrain and equipment. Installing tubes at the same time as planting would be more efficient, but it also makes planting more complex and increases demands on planting crews. We were also concerned about introducing plastic materials into our forests, even temporarily, and chose more durable products intended for reuse where we could. Even so, durability varies. For example, fibreglass stakes purchased for repeated use are already showing wear after one season.

The value of tree tubes also depends on the site. In forests where wild seedlings are already abundant, they may add little benefit. In plantations where deer or moose frequently graze or where species diversity is already low, tree tubes can play an important role in protecting key species when they are most vulnerable. The question is not whether tubes can work, but in what instances they make sense to use given their cost and impact.

Since we are only one season into this trial, we will continue monitoring results and comparing how protected and unprotected seedlings perform to better understand where and when this intervention delivers the greatest benefit.

Trying natural alternatives to tree tubes

We learned that the Medway Community Forest Cooperative has successfully used natural fencing in parts of Kejimkujik National Park in Nova Scotia. Their approach uses large wooden panels made from slats pegged together in a grid. Because the panels are not pressure-treated and use no metal fasteners, they can be left to break down naturally on site, reducing maintenance and cost.

Inspired by their work, we experimented with a more natural form of seedling protection at Jungle Road. We built brush fences around 200 seedlings using branches and leftover wood from the site. We identified small groups of regenerating seedlings which were important to the climate resilience of the forest, and built tall fences to help keep wildlife from grazing there. We will monitor how long this natural protection lasts and how effectively it protects seedlings compared with the plastic tree tubes.

An example of an experimental brush fence used to protect seedlings from deer browse.

Seed Collection

What we tried:

We collected seed from the mature forests in our care to grow or directly seed species that are difficult to obtain through commercial nurseries.

How:

After attending a workshop on seed collection organized by our colleagues at the Family Forest Network (FFN), we collected 1.8 kilograms of seed from oak, yellow birch, ironwood, hobblebush, white ash and other native species from several forests.

Collecting ironwood seed.

Why:

Hardwoods and non-commercial tree species are difficult to source. What is available in nurseries reflects market demand, and that demand is largely driven by the timber industry. The timber industry tends to prioritize fast-growing softwood species that are commercially valuable. In the Wabanaki region, that means a greater supply of spruce and pine, over less common species such as sugar maple, red oak, butternut, eastern white cedar, and hemlock.

Growing seedlings also takes time. Nurseries must collect seed, process it and grow it over several seasons before it is ready for planting, requiring upfront investment in staff time, infrastructure and equipment. For organizations like ours, these factors create a mismatch between what we want to plant and what we can readily access. By collecting seed ourselves, we hoped to bridge that gap and expand the diversity of species we plant.

According to the 2BT program, nurseries across Canada require up to 2 years of preparation before planting seeds and another 1 to 8 years before seedlings would be available for planting.[5]

What we learned:

Seed collection sounds simple but is, in fact, highly technical. Each species has different collection windows, storage needs, and processing requirements, in some cases requiring specialized infrastructure and technical skills. While some species like oaks are more straightforward to handle (they can simply be refrigerated), others, like ash, require complicated processing in order to get a viable seed. In practice, we found that proper collection and processing of seed would likely require at least one dedicated staff person. For small organizations without dedicated financial backing for seed collection, this may be difficult to sustain.

At the same time, outsourcing parts of the process is made challenging by the limited regional infrastructure and capacity to support it at the required scale. In New Brunswick and Nova Scotia, there is no dedicated seed processing facility and no strong network of certified seed collectors. While labs like the Atlantic Forest Seed Centre provide storage facilities and technical expertise, they are only accessible for industry and government users. There are some exciting and important local initiatives focused on the collection, processing, and growing of local non-commercial species and hardwood seeds, but these tend to be small-scale.

Given these challenges, we will likely continue collecting seed on an opportunistic basis. When our field staff come across priority species that are easy to gather and handle, such as red oak, we will collect them. However, without additional resources, we do not plan to develop seed collection into a dedicated program at this time.

5 Government of Canada. (2025). What it takes to plant a tree. https://natural-resources.canada.ca/forest-forestry/2-billion-trees-program/what-takes-plant-tree.

Direct Seeding

What we tried:

We tested a prototype machine that combines small-scale harvesting with direct seeding, planting seeds into the soil as trees are removed. We also scattered or planted seeds directly into the soil in gaps we created in our Cove Road restoration forest.

How:

We partnered with I.G. Silviculture, a Southeast New Brunswick company specializing in Ecological forestry. They developed a prototype device that attaches to harvesting equipment and releases seed into exposed soil as trees are removed, covering the seed afterwards. We trialled this approach on a 9-hectare section of the Norway spruce plantation at Jungle Road.

We also collected the seeds of various species (see **Seed Collection**) and directly sowed or planted them by hand in our Cove Road restoration forest. For some species, such as red oak, we prepared the soil and lightly pressed the seeds down into the soil with a stick. For other species, we scattered the seeds onto lightly scuffed soil. We focused on gaps left open in plantations so the new seeds would have space to grow.

The prototype mechanical seeder, ready to be attached to a harvester.

One of CFI's forest technicians plants a red oak seed in the ground.

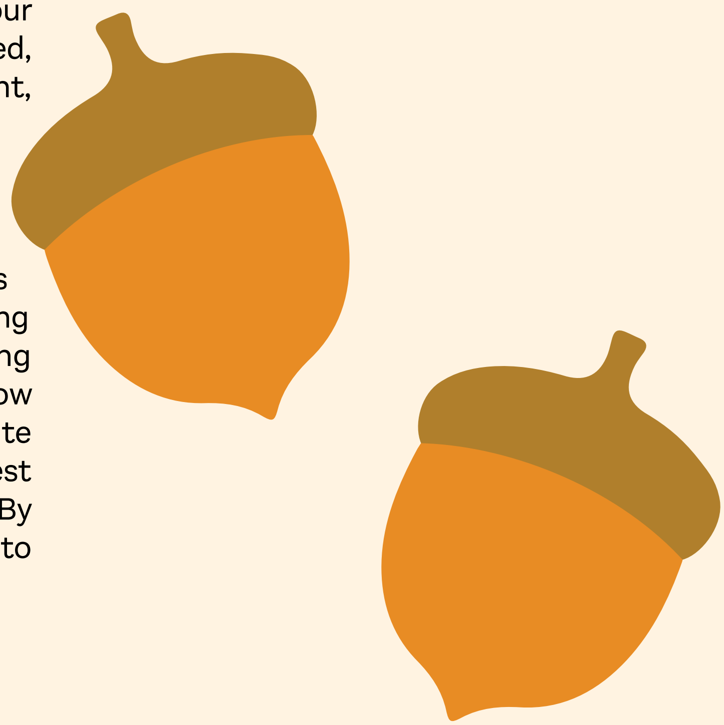
A five-year experimental study comparing planted holm oak seedlings with acorns sown directly into the ground found that trees grown from seed developed deeper, stronger root systems that were better adapted to natural conditions than nursery-grown seedlings.[6]

Why:

Direct seeding is a potential alternative to planting nursery-grown seedlings of species that are difficult to source. It can be cheaper and logistically simpler than traditional planting, and in some cases may even lead to stronger tree growth. Finally, combining seeding with harvesting, like we did with the prototype seeder, could make parts of our work more efficient by introducing desired species (through direct seeding) at the same time as gaps are created in the canopy (through harvesting).

What we learned:

Direct seeding is still an experimental portion of our restoration work. The prototype machine we tested, although still in the early stages of development, shows promise, especially for small landowners looking to reduce the costs of caring for their land by combining harvesting and planting in a single operation. That said, properly evaluating this method will require more trial sites and results over multiple growing seasons. For example, during our initial trial, a severe drought occurred during the germination period which likely reduced how many seeds were able to sprout. Access to the site was later restricted due to a provincial ban on forest activities as a response to extreme wildfire risk. By the time we were able to return, it was difficult to identify the planted seedlings.



6 Juan-Ovejero, R., Castro, J., Navarro, F. B., Rodríguez-Caballero, E., Reyes-Martín, M., Alcaraz-Segura, D., Jiménez, M., & Leverkus, A. B. (2025). Effect of revegetation method (seedling outplanting versus direct seeding) on holm oak root architecture: Implications for restoration success under a global change scenario. Forest Ecology and Management, 598, 123187. https://doi.org/10.1016/j.foreco.2025.123187

Monitoring our ANR efforts

With these trials now complete, the next step is beginning long-term monitoring to understand the impact they are having on our regenerating forests. Forest regeneration happens slowly, and it will take years of data collection to know whether these interventions are shaping the forest as we had hoped.

Our focus will be on answering two questions. First, are the natural seedlings we tried to support surviving and growing better than they would have without our help? Second, are the areas where we applied ANR techniques gradually developing into forests that are more diverse and better suited to future climate conditions than comparable sites where we did not intervene?

Monitoring the impact of ANR techniques brings its own unique challenges. The biggest puzzle is finding a way to reliably distinguish between planted and natural seedlings, so we can track and compare their performance. When trees are young, this is usually possible. Planted trees often look slightly different because they were raised in nurseries, and they may be arranged in straight rows. Still, doing those visual checks is time consuming and not always reliable. Over time, those differences become less obvious, which makes monitoring more complex.

One of CFI's forest technicians operates a drone to help with the monitoring of our ANR trials.

Using drones to monitor impacts

Like many others working in forest restoration, we have been curious whether drones could help us address some of these questions. In theory, drones allow you to collect data over large areas quickly and collect data at the exact same locations every time. They can create detailed maps and models that show us how a forest is changing over time. Our hope was that drone imagery could help us track individual planted and natural trees over time starting from when they are still very young.

At the same time, these potential benefits come with trade-offs. Using drone technology requires investing in training, equipment and software, and drones may not always capture the fine details our specialized field staff notice on the ground. The best way to care for a forest is to get to know it well, and the best way to do that is by spending time in the forest.

Still, as the amount of land we care for increases, so does the complexity of our monitoring program. To understand whether drone technology could be a useful addition, we partnered with a local company specializing in the use of drones for various applications.

Partnering with Drone Edge Services

We first began exploring drone technology through a short trial comparing carbon estimates from drone imagery with the carbon data we collect through field inventories. Building on that, we later partnered with the Family Forest Network (FFN) in Nova Scotia to understand how drone imagery might help us track our restoration forests. Using mapping software, FFN stitched together images we collected using our own drone (an entry-level DJI Mini 2) to create models of our forest. We can use these models to derive some of the data we collect in the field, like tree height and diameter. However, our drone was not capable of consistently producing images at a high enough resolution to replace field work. Setting up the flight paths for the drones also requires using special software, which took time to learn how to use.

To see whether drone imagery could help us monitor these ANR trials, we decided to partner with a specialized local drone company, Drone Edge Services. They have commercial-grade drones, advanced GPS technology and a licensed drone pilot. Together, we tested different flight settings, mapping programs and artificial intelligence tools designed to estimate individual tree counts. So far, we have completed three flights and have more planned in the future.

What we learned:

Our biggest finding was that, even with advanced equipment, very young seedlings are difficult to detect reliably. While some studies suggest that drones can detect seedlings as small as 30 centimetres to 1 metre in height, in our experience trees generally needed to be closer to two metres tall before they showed up clearly in imagery. This limits how useful drones are in the early stages of ANR monitoring, when seedlings are still small. For the same reason, it was impossible to distinguish between planted and naturally regenerating seedlings with the drone imagery we collected.

We also found that a lot goes into working with drones. Flights require much logistical planning and there is a steep learning curve to both flying the drones and processing the images they produce. Using our own equipment and processing the images ourselves requires significant time from our field staff, and the level of detail we are getting does not replace what our forest technicians can observe on the ground. Better equipment and more training would likely improve results, but we would need to make sure that the benefits would outweigh the costs before investing further resources.

Partnering with an experienced local drone operator has helped with some of these challenges. The maps and 3D models they produce have been useful and provide a good overview of the overall condition on our regeneration forests, although not at the needed resolution to help us monitor our ANR trials. We have additional flights planned and are continuing to refine how we collect and analyze data by testing different approaches. We look forward to learning more about how this information can support and inform our forest stewardship decisions.

Summary

We are grateful to the Government of Canada's 2 Billion Trees program for the support they provided us to trial these interventions. Funding for experimentation and learning in forest restoration is rare, and this support allowed us to test approaches that go beyond conventional planting. Depending on the results we obtain from long-term monitoring, these efforts may help us in responding to the scale and urgency of the climate crisis by building on the natural processes already at work in forests. As results emerge, we will work to share what we learn with our many colleagues and partners caring for the Wabanaki forest.

Red Maple

Appendix A

Common Name	Latin Name
American Basswood	*Tilia americana*
American Beech	*Fagus grandifolia*
American Mountain Ash	*Sorbus americana*
Balsam Fir	*Abies balsamea*
Balsam Poplar	*Populus balsamifera*
Black Ash	*Fraxinus nigra*
Black Cherry	*Prunus serotina*
Black Spruce	*Picea mariana*
Black Willow	*Salix nigra*
Bur Oak	*Quercus macrocarpa*
Butternut	*Juglans cinerea*
Eastern Hemlock	*Tsuga canadensis*
Eastern Larch	*Larix laricina*
Eastern White Cedar	*Thuja occidentalis*
Grey Birch	*Betula populifolia*
Ironwood	*Ostrya virginiana*
Jack Pine	*Pinus banksiana*
Large Tooth Aspen/Poplar	*Populus grandidentata*
Mountain Maple	*Acer spicatum*
Mountain Paper Birch	*Betula cordifolia*
Pin Cherry	*Prunus pensylvanica*
Red Maple	*Acer rubrum*
Red Oak	*Quercus rubra*
Red Pine	*Pinus resinosa*
Red Spruce	*Picea rubens*
Serviceberry	*Amelanchier canadensis*
Silver Maple	*Acer saccharinum*
Striped Maple	*Acer pensylvanicum*
Sugar Maple	*Acer saccharum*
Trembling Aspen/Poplar	*Populus tremuloides*
White Ash	*Fraxinus americana*
White Birch	*Betula papyrifera*
White Elm	*Ulmus americana*
White Pine	*Pinus strobus*
White Spruce	*Picea glauca*
Yellow Birch	*Betula alleghaniensis*