# Reforestation in the Central Interior

## *A glimpse of the past and a view to the future*

The forest industry in British Columbia has a long history of developing reforestation techniques that continue to set world standards. With the planting of the province's five billionth seedling in the Central Interior, everyone in the province is sharing in the successes and remembering the many men and women who have helped build the world-class reforestation program we rely upon.





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# A seed is sown...

At the turn of the century, sawmills were emerging in the Central Interior to fulfil the increased need for timber. The vast spruce forests of the northern region seemed inexhaustible. In 1910, lumber and railway ties were needed to build the Grand Trunk Pacific Railway, and with the arrival of the railroad in Prince George in 1914, the landscape would be forever altered.

By the 1920s, sawmilling and lumber exports were well established with approximately 30 sawmills operating. However, little thought was given to the future of the forests.

The British Empire Forestry Conference in Canada (1923) made several important recommendations regarding logging systems that would enhance natural regeneration. More importantly, the conference recommended that research be undertaken concerning the suitability of certain tree species for reforestation.

In 1924, a forestry research experiment station site was selected at Aleza Lake, east of Prince George. British Columbia Forest Service researchers staffed the station in 1927 to conduct experiments in forest management. Around this time nurseries and planting programs were established on the Coast and Vancouver Island. However, a depression and a world war would pass before significant changes would take place in the Central Interior.

*Personnel of the Fort George District at Rangers Meeting held at Aleza Lake from Oct. 12 to 17, 1925.*

Fraser-Fort George Regional Museum

# A germinant appears...

During the 1950s, it was thought that reforestation was not required to any large extent in the Central Interior. However, Justice Sloan completed his second Royal Commission report on forestry in 1956 and stressed the importance of reforestation. He also suggested the Forest Service experiment with direct seeding methods, start a seed collection program, and use harvesting systems that promoted natural regeneration.

*Justice Sloan's second Royal Commission on forestry in 1956 stressed the importance of reforestation.*

The government reacted quickly to the Sloan Report. Small nurseries were established at ranger stations in Hixon, Fort Fraser, and Telkwa. Three pilot plantations were started in the Prince George Forest District using spruce and Douglas-fir seedlings grown at the Green Timbers Nursery in Surrey. Levels of planting gradually began to increase.

*George Silbourn (standing) was the forester in charge of the provincial BC Forest Service reforestation program. George and his crew handled the first planting at Lynn Fire in 1959.*

Some of the first plantations were established in areas burned by wildfire that had not regenerated naturally. In 1959, approximately 43 hectares of the Lynn Fire were planted with spruce seedlings grown at Green Timbers nursery. This is considered the first official plantation established in the Central Interior.

# Healthy seedlings abound...

The 1960s were a time of significant change in forest practices. The Hon. Ray Williston, Minister of Forests from 1956 to 1972, wanted to increase lumber recoveries from the forest and provide a stable source of raw materials for the newly developing pulp industry. Williston agreed to increase the forest companies' timber quotas if they installed debarkers and chippers at their sawmills. In addition, they had to adopt to a higher standard of utilization.

Reforestation programs also took a new direction. Foresters recognized their harvesting practices and reliance on natural regeneration needed to be changed to ensure that forests were managed for a sustained yield. A new concept in harvesting systems emerged to change industry thoughts about reforestation forever. The program was an enormous success. Strip logging and natural regeneration evolved into the more successful system of clearcut harvesting and planting. This system is still commonly in use today.

To prepare the site for natural regeneration or planting, site preparation was used to reduce harvesting debris and modify site conditions. Prescribed broadcast burns

quickly became the site preparation method of choice. Two of the first prescribed burns were conducted near Prince George in 1965 and the following year near Hixon.

Mechanical site preparation was another common alternative. However, Bob Richards, RPF, Silviculture Officer, Prince George Forest District, said: "Today better seedlings and cleaner logging have reduced the amount of site preparation."

Initially, modest annual increases in the planting program were proposed. However, record levels of planting were recorded in the early 1960s. By the mid 1960s, demand for seedlings exceeded supply, and nurseries expanded their operations.

"In 1967, the first planting took place in Hixon. We planted 67,000 seedlings. I thought we'd never get them all in the ground. I hired six women and it took them a month to plant them. They planted about 300 to 400 trees per day and were paid hourly. The cost of a seedling and getting it into the ground amounted to five cents," recalls former Ranger Dawson Wallin.


*The Minister, Hon. R. Williston (left) and Deputy Minister, F.S. McKinnon, at the opening of the Red Rock Nursery Research Centre in 1967.*

To satisfy the growing demand for seedlings, the Red Rock Nursery was established in 1967. The nursery was the official centenary project of the BC Forest Service. Further nursery expansion was required to achieve provincial planting targets of 61,000 hectares annually. To meet the target, the annual production of 75 million seedlings was required by 1975. Hence, the slogan "75 by 75."

New techniques were developed in seed collection and storage. "In 1970, the first large cone collection project occurred in Prince George and the surrounding area. The effort of 25 pickers in each of the seven ranger districts was required to produce enough seed to grow 80 million seedlings," recalls John Revel, RPF (Ret.), a retired Forest Service silviculture specialist.

*Planters from the Central Interior in 2000.*

By 1971, the Hixon Ranger District was the first district in the

Central Interior to plant over one million seedlings in one season. Planting was accomplished with the significant contribution of women who comprised many of the hourly paid crews responsible for planting trees or picking cones.

*One of the early shipments of cones for the seed collection and storage project in 1970.*

"We each planted about 450 trees per day; it doesn't seem like a lot, but you have to remember we were very careful. When you put the tree in the ground, you knew in your heart that the tree was going to live," relates previous Prince George tree planter Helen Wlasitz. However, in the early 1970s it was evident that this stable, but small, workforce could not meet the demands of the rapidly expanding reforestation program.

Planting contractors began mobilizing hundreds of young adults capable of planting millions of trees throughout the province. New expectations regarding planter productivity and survival rate of seedlings led to the development of new planting tools and standards for seedling transportation, storage and handling.

Forestry contractor Bruce Hawkenson recalls the innovative nature of planting contractors in the 1970s: "Hugh Jervis, a man who in later years became one of my partners, responded to our ad for an experienced tree planter. He had planted in New Zealand where they only used shovels. We only used mattocks. He reluctantly used the mattock but in a more effective way and produced a hole that was straight and deep, the same as you could make with a shovel. It didn't take long for him to convince us that he could plant almost double what we were and get better quality. We eventually took cat track shovels, cut them down, welded a bar across the top, and made planting shovels. Shovels are all we use now."

*Planter, Helen Wlasitz, wearing the plug carrier bags in 1971.*

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Helen Wlasitz

Contractors quickly adapted the old or developed new equipment to meet the challenge of changing transportation and handling standards. Merl Gordon, a reforestation and management contractor, describes how "the quad was initially designed for recreation but out of necessity, planting contractors modified the sturdiness of both the ATV and trailer to ensure safe transportation of crew and seedlings into remote or deactivated areas."

In addition to advances in planting operations during the 1970s, important developments occurred with the introduction of improved seedling stock types, a wider variety of tree species, and more effective site preparation.

In the early 1970s, lodgepole pine became a more commercially valuable species and it was introduced into plantations in addition to white spruce and Douglas-fir. John Revel, RPF (Ret.) considers Red Rock Nursery as the nursery that pioneered the growing of lodgepole pine seedlings in BC. At this time, several lodgepole pine genetics research trials were established under the direction of Keith Illingworth at the Prince George Tree Improvement Station, located across the Fraser River from the Red Rock Nursery. Information from these trials provided much of the baseline genetic information for the interior lodgepole pine seed orchard program.

"The importance of long-term research projects, like the species and planting density trials established by people like Harry Coates (retired Forest Service technician) and John Revel, RPF (Ret.), is that they are still providing vital information on forest growth, nearly four decades later," contends Mike Jull, RPF, Manager of the Aleza Lake Research Forest.

*The all female planting crew in Hixon, 1973.*

The development of container technology in the early 1970s began to revolutionize the nursery sector. By 1980, nearly half of the seedlings planted were grown in containers. By 1990, bareroot seedlings would comprise less than five percent of all trees planted.

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MIKE JULL, RPF
Aleza Lake Research Forest

## Plantations everywhere...

Over the next 15 years, many events temporarily increased seedling production and planting above normal levels. In the 1980s, a huge outbreak of spruce bark beetle, east of Prince George, resulted in salvage harvesting of 50,000 hectares in the Bowron River watershed. More than 60 million seedlings were planted in the Bowron. The clearcut that brought notoriety is now recognized as a healthy young forest.

*The Industrial Forestry Service Nursery at Prince George.*

Merl Gordon was part of the tremendous effort to reforest the Bowron. "When I look back, everybody contributed at the time. But now I realize we've become part of the legacy of the largest, most successful plantation in the province."

*The reforested Bowron as it looks today.*

As a result of significant changes in legislation in 1987, forest companies became responsible for the cost and implementation of reforestation on areas they harvested. Before harvesting could begin, a mandatory pre-harvest assessment had to be completed on the site. An essential component of the assessment included identification of forest ecosystems.

Blake Dickens, RPF (Ret.) gives credit to those who developed an ecologically based forest management system: "I think the most significant advance that we made in BC was when we started to tailor the selection of site preparation and planting stock to the ecology of the site. Initially, the ecological classification system required a lot of training for foresters and others who worked in the woods. The public was not made aware of this and did not always know that we used a complicated yet sophisticated ecologically based approach to reforestation. They just saw clearcuts."

These legislated changes also enabled the forest companies to grow their own seedlings or to purchase them from a commercial nursery. This led to further development of stock types and improved seedling survival and performance. Changes also included the mandatory use of select seed orchard seed when available. In areas where select seed is not available, high quality seed from natural stand cone collections is used.

Seedling production doubled between 1980 and 1990. Growing seedlings with increased performance and survival rates involved the expertise of both nursery staff and foresters. "We needed to learn how well our seedlings would perform once they were planted," said Francis Donnelly, a nursery manager with Industrial Forestry Service Ltd., "and foresters had to increase their knowledge of how seedlings were grown in a nursery. By understanding the entire process and working together, we were able to

*Planters working in the Central Interior in 2000.*

*Hundreds of millions of seedlings are being grown in BC every year.*

develop a customized approach to growing seedlings. We were able to produce a variety of stock types grown to different specifications in order to meet the needs of individual sites."

By mid 1990, annual seedling production peaked at approximately 250 million seedlings. Today, more than 40 nurseries in the province produce seedlings for the Coastal and Interior regions. Approximately 35 percent of the seedlings are planted in the Prince George Forest Region. Increases in seedling survival rates demonstrate the continuing success of BC's reforestation program.

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Research programs provide an environment where researchers and foresters can stretch their imaginations and knowledge, and contribute to the success of BC forest management. "Throughout much of our history, the Aleza Lake Research Forest has been symbolic of an intergenerational effort to learn about our forests. This research continues to provide a much more detailed understanding of how to manage our ecosystems and ensure the sustainability of all the resources out there in our forests" explains Mike Jull.

The research forest is now directed by a society with a diverse membership including UNBC, UBC, Ministry of Forests, Ministry of Water, Land, and Air Protection, and forest companies. It will continue to provide solutions for today and establish long-term research for the future.

*Spruce seedlings being grown in Styroblock™ containers.*

# *The five billionth tree... the future...*

The planting of the five billionth seedling in the Central Interior is a reminder, just like the new faces of young tree planters each spring, of our successful reforestation program in BC. This program is a success because of the efforts and dedication of a long chain of participants who share in the accomplishments of the program and the level of sophistication it now enjoys.

*More seedlings being planted in the Central Interior.*


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