



RECENT WILDFIRE AND

MOUNTAIN PINE BEETLE

DEVASTATION HAS LED TO NEW

B.C. FOREST CARBON OFFSET INVESTMENT OPPORTUNITIES

ON 1,000,000 HECTARES OF BC'S FORESTS

REQUIRING NEW AND INNOVATIVE

REFORESTATION SOLUTIONS.



Mountain pine beetle
devastation* and wildfire
destruction have led to
new partnerships
in reforestation.

Forest Carbon in British Columbia

Forests are among the most significant and efficient moderators of carbon emissions.

Forest ecosystems are extremely important for the worldwide storage of carbon and account for about 40 per cent of the total carbon stored in terrestrial ecosystems. British Columbia's forests cover roughly 55 million hectares (ha) of land, an area larger than the entire land mass of Spain and represent 6-7 billion tonnes of carbon in above ground biomass.

Approximately 60 per cent of British Columbia's land base is forest land and 95 per cent of these forest lands are public and owned by the Province.


British Columbia contains vast and diverse natural forests and rangelands consisting solely of native tree species. Some of these forests contain the most carbon storage per hectare for any forest type in the world. British Columbia is the most biologically

diverse province in Canada home to approximately 49 native tree species and a diverse array of wildlife with over 300 species of birds and 190 mammals ranging from predator bird species like bald eagles, ospreys and peregrine falcons to wild populations of grizzly bears, caribou, grey wolves and rocky mountain big horn sheep.

Among all Canadian provincial jurisdictions, B.C. has the highest percentage of its land base dedicated to protected areas. Today more than 14 million hectares of the province is protected as parks. In addition to the 14 million hectares of protected areas, millions of hectares of land in BC have some special management designation, limiting resource development to varying degrees.

Stewardship of our natural resources is an important component of our economy. In British Columbia, our legislation requires all timber harvest areas to be reforested within a few years of harvest. As a result over 200 million trees are planted annually in the province. Our forest carbon investment program goes beyond the legal requirements to reforest and aims to provide additional carbon restoration and reforestation benefits.

British Columbia is one of the best places in the world to invest in forest carbon offset projects. We have productive ecosystems, our trees are long lived and we manage our forests within a world leading sustainable forest management framework.




He who plants a tree
plants a hope.

Lucy Larcom



3

An aerial photograph of a lush, green forest. A river or stream winds through the center of the forest, reflecting the surrounding trees. The forest is dense with tall evergreen trees. In the background, mountains are visible under a clear sky.

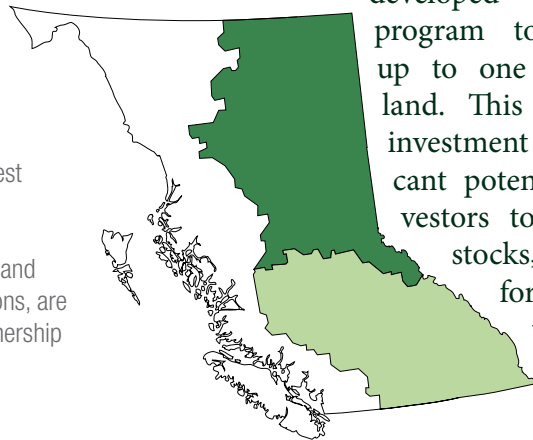
Investments in B.C.'s
sustainably managed forests
reach far beyond carbon
sequestration, providing
a wide range of significant
environmental benefits.

The restoration of British Columbia's forest lands

The stewardship of our forest lands, among the most significant and efficient moderators of carbon emissions, is a provincial priority.

British Columbia's Ministry of Forests, Lands, and Natural Resource Operations traces its expertise in the stewardship of B.C.'s forests back 100 years. Unfortunately, recent wildfire and mountain pine beetle devastation have damaged millions of hectares of our forests.

To confront these challenges, the Ministry has developed a robust private partnership program to aid in the reforestation of up to one million hectares of our forest land. This reforestation program provides investment opportunities with significant potential for long-term return to investors to partner in re-establishing tree stocks, helping in the restoration of our forests. The goal is to return them to their natural role of net carbon sinks.



British Columbia's forest areas most heavily affected by infestation and fire, the Northern and Southern Interior regions, are being offered for partnership in reforestation

This forest carbon offset investment program focuses on forests most drastically affected by infestation and fire. These forests are within the province's interior regions comprising 68 per cent of the province's forested land. North America's highest conifer diversity exists within our 55 million hectares of forest land.

It will be of interest to investors that British Columbia has one of the highest degrees of conifer diversity in North America and in terms of forest carbon investment opportunities, has some of the fastest temperate forest growth in the world. Forest carbon managers can utilize diverse tree species mixes to optimize forest carbon potential of the sites, enhance forest resilience and mitigate potential forest health risks such as pest infestations.



LODGEPOLE PINE

The dynamics of each ecosystem are key to the maintenance of its environmental stability and resilience. These are two key factors for the health and productivity of our forests.



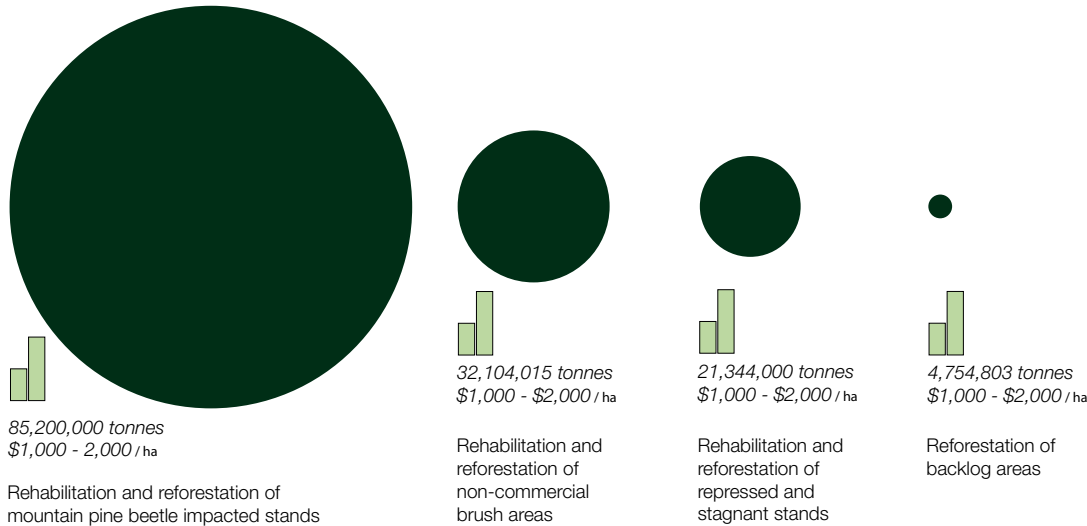
CARBON OFFSET INVESTMENT OPPORTUNITIES

Areas of forest lands available for investment
and estimated silviculture cost per hectare

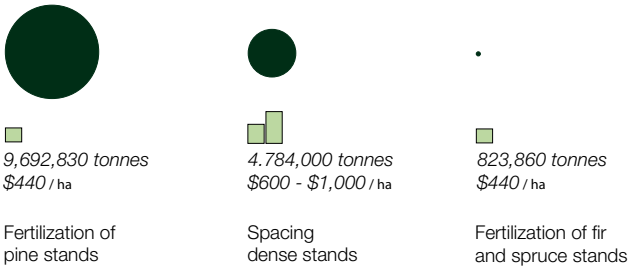
The impact of the mountain pine beetle on British Columbia's forests

Interior

REFORESTATION

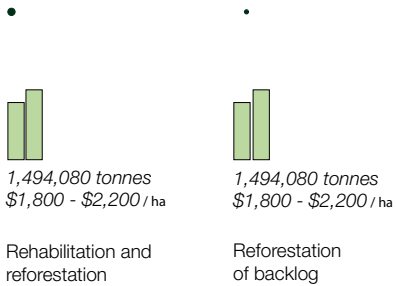


IMPROVED FOREST MANAGEMENT

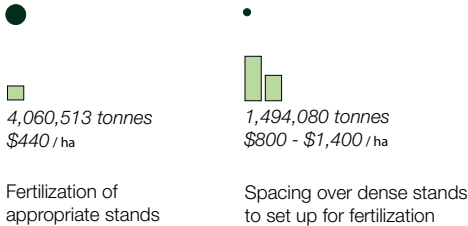


Coast

REFORESTATION

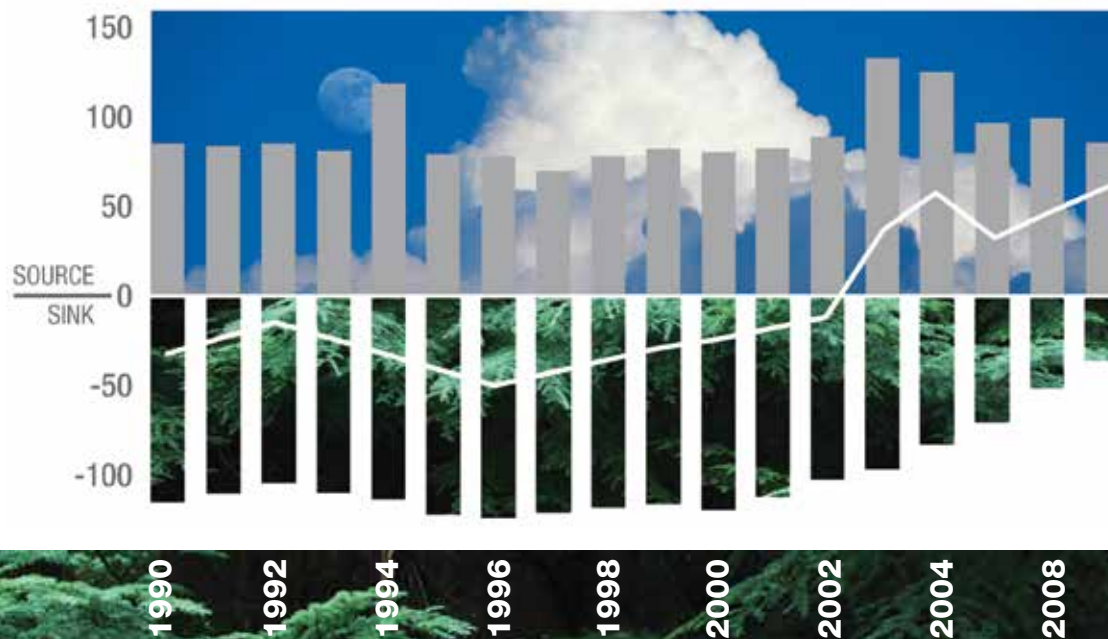


IMPROVED FOREST MANAGEMENT



The trees of British Columbia

Greenhouse gas sources and sinks in B.C.'s forest ecosystem
(Mt CO₂e/ yr)



Some common trees in British Columbia's forests are lodge pole pine, western red cedar, balsam fir, Douglas fir, white spruce, and trembling aspen. A range of tree species types suited to specific forest site factors provide a range of innovative options for projects. Sites being offered for forest carbon restoration opportunities can utilize a number of endemic tree types.

Up to 2003, the natural tree growth and decay cycle made B.C.'s forests valuable natural net carbon sinks. In other words, our forests removed more carbon from the atmosphere than they added. The massive damage wrought by mountain pine beetle infestations and recent wildfires has impacted our forests' value as carbon sinks. Our forests have become net carbon sources, emitting more carbon into our atmosphere than they absorb.

By engaging with forest carbon investors and partnering in reforestation projects we can accelerate the shift from carbon source back to the natural state of net carbon sinks.

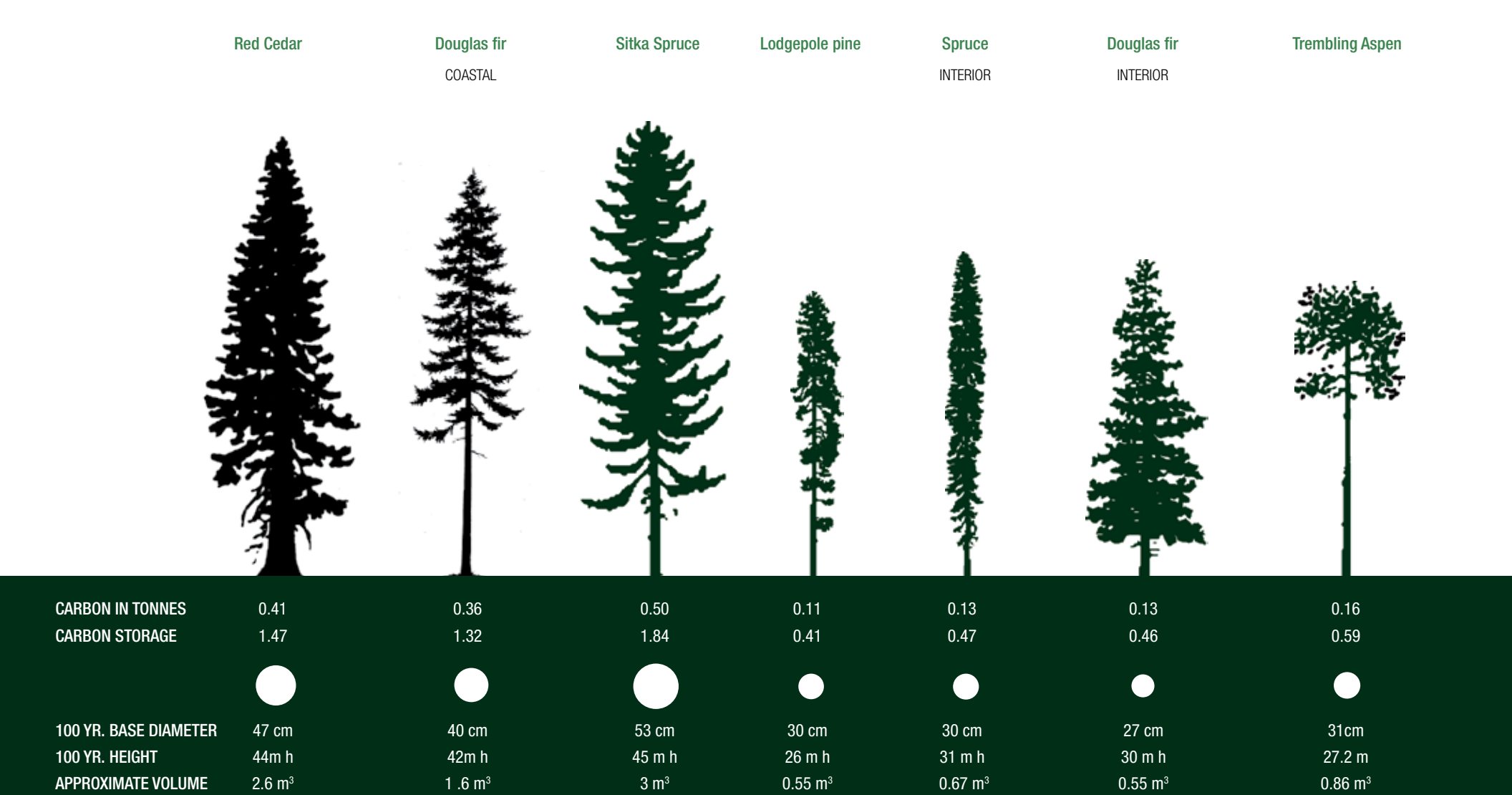


The impact of the mountain pine beetle and wildfires since 2003 has been a main driver in transforming our forests from a net carbon sink to a source of greenhouse gases

7

CARBON OFFSET INVESTMENT OPPORTUNITIES

Average tree species growth rates and carbon sequestration values



The carbon offset investment process



THE INVESTMENT PROCESS

Every carbon investment project occurs within:
A. Sustainable forest management practice, and
B. The Forests for Tomorrow Program

THE FIVE PROJECT STEPS ARE:

1. REQUEST FOR PROPOSAL
2. CHOOSE SUITABLE PROJECT AREAS
3. DEVELOP PROJECT PLAN WITH CONTRACTOR
4. APPROVE AND VALIDATE PROJECT PLAN
5. VERIFY OUTCOME AND RECEIVE OFFSETS

Sustainable Forest Management

Operating on time-tested principles, sustainable forest management is the science-based framework guiding the stewardship and use of our forests. It is driven by social, economic and environmental directives. The framework ensures our forests maintain their biodiversity, productivity, and their regenerative capacity. These qualities provide beneficial ecological, social and economic conditions now, and for future generations. Among the world's largest, most respected forest economies, British Columbia stands tall as a global leader in sustainable forest management.

It is important to note that approximately 95 per cent of the province's forests are on Crown land. This has provided the province with unique advantages. Control over Crown land has allowed for the scientific collection of vast amounts of statistical information about our forests over many decades. The information gathered and interpreted is the foundation for planning the sustainable productivity of our forests. This productivity is supported and protected by a comprehensive framework of legislation applied across all activities within our forest lands.



Carbon offset project investments are protected by legislation that guarantees organized enforcement, regular monitoring, and public reporting. Your investment is heavily protected from illegal logging.

There are a number of key strategies and pieces of legislation protecting and nurturing the sustainability of the province's forests. B.C.'s Protected Areas Strategy, Land and Resource Management Planning, and Forest and Range Practices Act and regulations provide objectives for sustainable forest and natural resource management. The Land Act governs the disposition, management and administration of Crown lands, while the Forest Act sets out rights and responsibilities attached to timber cutting. The suite of legislation designed for environmental and species at risk protection includes the Wildlife Act, the Environmental Management Act, and the Drinking Water Protection Act. Each act governs a specific aspect of the sustainable management of our province's forests.

Forest certification

Forest certification is a key component in reforestation and is built upon the foundation of the province's forest legislation.

Each forest tenure's management plan must comply with provincial sustainable forest management policy and practices. Many B.C. forest companies go beyond the requirements of the strong provincial sustainable forest management framework to have their plans certified by recognized, independent certification bodies. The Canadian Standards Association, the Forest Stewardship Council, and the Sustainable Forestry Initiative are the main forest certification bodies in Canada.

British Columbia is the world's leader in forest certification. More than 53 million hectares have been certified. Only Canada itself has more certified forests.

Forest carbon investments

British Columbia's high standards for sustainable forest management provides provincially issued forest carbon offsets with a soundness above those issued by most jurisdictions. In addition, B.C. carbon offsets have the potential of attracting premiums on the carbon markets due to environmental and social benefits that go beyond the carbon sequestration benefits upon which each project is based.

The province's robust standards provide investors with a significant advantage in a world where many offsets are far less accurately quantified — thus much less credible. To guide forest carbon accounting and management of projects in the province's forests, British Columbia has developed its own forest carbon offset protocol. The protocol is tailored to British Columbia's forests with rigorous criteria to ensure forest carbon projects meet or exceed every international standard.

Remember, not all offsets are created equal!

Climate change

Climate change has an impact on our forests, our economies, and our world. In recognition, B.C. developed its Forest Stewardship Action Plan for Climate Change Adaption. The plan's three primary goals are to foster resilient forests, maintain the future benefits of our forests, and to build adaptive capacity across the natural resource sector. Ongoing action on the plan ensures the province's forests, and your investments in them, are well protected from climate change impacts.

The combined site index

British Columbia has some of the most productive temperate forests in the world. This high productivity is the result of the good soil conditions, warm summers and ample rain and snowfall on forest sites. The combined site index, illustrated on this page, is a tool used to estimate the carbon offset potential for a specific reforestation site. The base site index for each carbon offset investment project is established by the growth rate data for the area and the application of data from B.C.'s ecological classification system. Combining the base site index with the quantification of the site's physical description, and with the best reforestation strategy for the given site, provides planners and investors with the combined site index. This index is the basis for determining a site's investment yield.

Project areas with high site indices are offered to investors. Offerings are being facilitated through an open call for proposal program. The combined site index provides the investor, the contractor, and the Ministry with an estimated projection of the area's carbon offset value and its timber yield at forest maturity. ■



The combined site index determines the carbon potential for an individual site

The value of British Columbia's carbon offset credits

Opportunities for Forest Carbon Offsets in B.C.

	FOREST MANAGEMENT TYPE	PROJECT TIME FRAME	AVAILABLE HECTARES	FEASIBLE TREATMENT OPPORTUNITY	ESTIMATED ADDITIONAL CO ₂ IN TONNES CO ₂ e IF FEASIBLE AREA IS TREATED
Coast	Improved Forest Management	10-20 years	147,655	147,655	4,061,000
	Reforestation and Afforestation	50-60 years	212,282	7,522	1,605,000
Interior	Improved Forest Management	10-20 years	1,209,246	762,079	10,517,000
	Reforestation and Afforestation	80 years	6,482,600	672,689	143,403,000
Total	All Project Types		8,051,783	1,589,945	159,586,000



BC is among the world's largest and most efficient reforesters and will plant over 200 million trees this year

The B.C. Forest Carbon Offset Investment Program offers investors the opportunity to profit from the sale of carbon offset credits earned by helping build the province's environmental and economic future. The Pacific Carbon Trust, a provincial Crown corporation, will purchase up to 100,000 tonnes of carbon credits from the initial offering. With the success of this offering, the program will supply offset credits to the Pacific Carbon Trust to meet future carbon neutral government goals.

In 2010 the Pacific Carbon Trust purchased 730,000 tonnes of CO₂e offsets on behalf of the provincial government, which, by law, must achieve annual carbon neutrality. Currently, one-third of the Pacific Carbon Trust's portfolio comes from the province's forest sector.

The stable and credible value of the province's carbon offsets — both at home and on international markets — rests on the foundation of B.C.'s solid reputation for worldwide leadership in sustainable forest management and climate action.



To ensure the success of each British Columbia reforestation project, tree seeds are required to meet a number of standards in their collection, genetic diversity and their physical quality.

CARBON OFFSET INVESTMENT OPPORTUNITIES

Estimated yield on potential project investment for a typical 1,000 ha reforestation/afforestation project in B.C.'s interior

If the sole motivator for investment is financial return, other investment options provide greater financial returns. If you are looking for an investment that takes action against climate change, improves your corporate carbon footprint, provides significant additional environmental benefits and can provide long-term financial returns, then B.C.'s forest carbon offset program stands out.

INVESTMENT	ADDITIONAL TONNES OF CO ₂ e SEQUESTERED	ADDITIONAL CUBIC METRES OF TIMBER GROWTH	SAMPLE INVESTMENT YIELD WITH CARBON VALUED AT \$20.00 PER TONNE*
\$1,000,000 to \$1,500,000	160,000 - 175,000	176,000	\$2,500,000 to \$3,500,000

* The exact investment yield is site-specific and is calculated using the combined site index explained on page 10 of this document.

Key silviculture terms

Improved Forest Management is a system of practices for stewardship and use of forest land, which may include production of harvest wood products, which reduces greenhouse gas (GHG) emissions and/or increases GHG sinks / carbon pools.

Afforestation is the establishment of new forests by seeding or planting previously non-forested land


Reforestation is the natural or intentional restocking of existing forests and woodlands that have been damaged or depleted.

Estimated project investment potential

SILVICULTURE TREATMENT TYPE	TREATMENT DESCRIPTION	ESTIMATED SILVICULTURE INVESTMENT/HECTARE	SILVACULTURE INVESTMENT/TON CO ₂ e SEQUESTRATION GAIN	TOTAL CARBON SEQUESTRATION ON ALL FEASIBLE LAND*
Reforestation	Rehab & reforestation of non salvaged mountain pine beetle-killed pine stands	\$1,500	\$4.69-9.37	85,200,000
	Rehab & reforestation of repressed/stagnant pine stands/ problem forest types	\$1 ,500	\$4.69-9.37	21,344,000
	Rehab & reforestation of Non-commercial brush areas	\$1,500	\$4.69-9.37	32,104,015
	Reforestation of backlog NSR**	\$1,500	\$4.69-9.37	4,754,803
Improved Forest Management	Fertilization of fir and spruce stands	\$440	\$31.88	823,860
	Fertilization of pine stands	\$440	\$31.88	9,692,830
Total				158,708,508

*additional CO₂ from tree growth in tonnes

** areas denuded prior to 1987



The BC Forest Carbon Offset Investment Program offers investors the opportunity to profit from the sale of carbon offset credits.

The ongoing implementation of the *BC Forest Stewardship Action Plan for Climate Change Adaptation* ensures the province's forests, and your investments in them, are well protected from the full amplitude of fluctuations in climatic conditions.

CARBON OFFSET INVESTMENT OPPORTUNITIES

Information for investors

Online resources

Ministry of Forests, Lands & Natural Resource Operations

Carbon Solutions

www.for.gov.bc.ca/het/index.htm

The Forest Carbon Offset Protocol

www.env.gov.bc.ca/cas/mitigation/fcop.html

The B.C. Forest Stewardship Action Plan for Climate Change Adaptation

www.for.gov.bc.ca/het/climate/index.htm

Potential purchaser of carbon offset credits

Pacific Carbon Trust

www.pacificcarbontrust.com/

Contact

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Manager of Carbon Solutions

Ministry of Forests, Lands &
Natural Resource Operations

250-356-6230

James.Sandland@gov.bc.ca



Ministry of
Forests, Lands and
Natural Resource Operations



Contact us to learn more
about forest carbon opportunities,
becoming a part of the climate
change solution and help
restore one of our great
natural resources.



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