

Conservation Offsets

A Revenue Tool to Conserve Natural Areas,
Watersheds and Community Resilience



Acknowledgements

This booklet was written by Briony Penn.

Much of this material was adapted from *Credible Conservation Offsets for Natural Areas in British Columbia - Summary Report*, 2009 by Dirk Brinkman and Richard J. Hebda, edited by Briony Penn, published by the Land Trust Alliance of British Columbia (LTABC). It followed on a previous LTABC report, *Mitigating and Adapting to Climate Change through the Conservation of Nature in British Columbia*, 2008, by Sara J. Wilson and Richard J. Hebda. Both reports are available at www.landtrustalliance.bc.ca or in print through our office.

Assistance with editing and layout was provided by Sheila Harrington, Dirk Brinkman and Kathy Dunster. ***Definitions for offset terms are provided at the back of this booklet.***

Cover photo - by Gordon Scott, Coastal Douglas-fir/arbutus forest, impacted by feral sheep on Lasqueti Island.

Back cover photo - by Shari MacDonald, Creekside Rainforest on Salt Spring Island, protected by TLC The Land Conservancy of BC and the Salt Spring Island Conservancy in 2008.

The Land Trust Alliance of British Columbia is a charitable, membership-based organization comprised of land trusts, associated organizations and individuals. We are dedicated to the stewardship and conservation of BC's natural and cultural heritage through support of land trusts, conservancies and others. We provide education, research, communication and financial services.

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Why conserve natural areas?

Besides the traditional reasons for the conservation of natural areas, it is also recognized as a critical strategy for reducing impacts from climate change. The world's leading scientists recommend that we make it a top priority to conserve and restore forests and other carbon-rich ecosystems to both mitigate and adapt to climate change.

The United Nations identifies four benefits from protecting natural areas:

- pulling greenhouse gases (GHG) out of the atmosphere and storing them in plants and soils;
- preventing emissions due to deforestation and degradation of ecosystems;
- providing resilience to adapt to climate change (adaptation);
- protecting ecosystem services (clean air, water and other necessities of life).

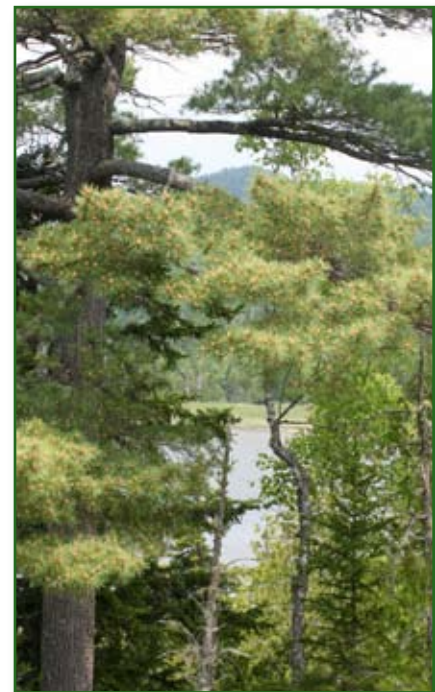
**** Definitions for offset terms are provided at the back of this booklet****

In addition to conserving existing natural carbon sinks, such as forests, grasslands and wetlands, there is an urgency to restore as many damaged areas as possible back to a natural state. To achieve both conservation and restoration, all sectors of society need to engage in land stewardship. The Copenhagen Accord established an urgent priority to conserve nature through a variety of legislative and financial tools, such as carbon offsets for conservation, or conservation offsets.

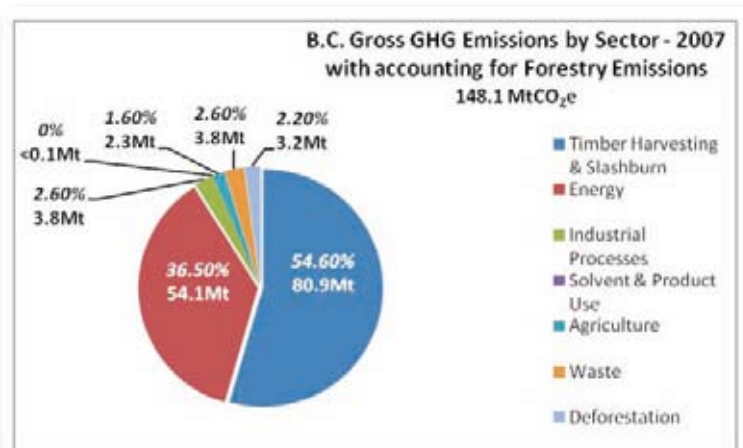
Why is nature conservation so important in BC?

In BC, over half of all greenhouse gas emissions are due to degradation of forests, as a result of timber harvesting, and deforestation from development. When natural areas are heavily degraded by human land use, much of this stored carbon is released back into the atmosphere as carbon dioxide. In the most recent BC Greenhouse Gas Inventory report, 2007, these two sectors account for 57% of our gross emissions, which exceeds all other sectors combined—outstripping the sector of energy associated with transportation. In BC we must do everything possible to reduce fossil fuel emissions as well, but we must avoid emissions from all sectors, including land use.

Currently, the BC government measures emissions for timber harvesting, but doesn't include these figures in their overall carbon budget, as Canada opted out of accounting for land use changes in 2006 under the Kyoto protocol. Given how significant a source land use is in Canada and BC, opting out of accounting and avoiding political and public recognition of land use changes, clearly has huge consequences for the atmosphere. This creates an overlooked opportunity for communities, local governments, land trusts and First Nations. Conserving and restoring carbon-storing natural areas is a local action which is recognized internationally in reducing emissions from land use change (degradation).



Based on the average estimates, the total carbon stored by BC's forests amounts to 88 times Canada's annual greenhouse gas emissions. (989 times BC's GHG annual emissions). Source: Sara J. Wilson



Adapted from data in the BC Greenhouse Gas Inventory Report, 2007, re-printed from *A New Climate for Conservation*, 2010 Jim Pojar

What is a conservation offset?

The verb “to offset” is used to describe the act of mitigating a damaging activity like destruction of habitat or carbon emissions. Conservation offsets include protection of a natural area and its carbon, in lieu of ecosystem damage or carbon emissions elsewhere.

One example of a conservation offset to mitigate ecosystem damage is the Columbia Trust’s policy of buying habitat to offset the destruction of land by the Columbia dams. BC Hydro is considering implementing conservation offsets for all future damage caused by hydro projects. The US has practiced wetland offsets for years to mitigate wetland destruction.

The newest conservation offsets are a type of carbon offset, where ecosystems with carbon stored in the trees and plants, are permanently protected to offset the equivalent amount of carbon emissions released elsewhere. Recently, in California, the conservation of a mature redwood forest by a land trust has been used to offset carbon emissions by an energy company. Several other case studies are given in the Land Trust Alliance of BC’s report, *Credible Carbon Offsets for Natural Areas in British Columbia*.

Are Offsets Sin or Salvation?

Offsets have been challenged on the grounds that they are similar to the medieval practice of paying a priest for indulgence to forgive a sin. This controversy over offsets arose during the initial Kyoto negotiations. Many people were concerned that coal-powered electricity generation plants would just buy credits for reforestation, which might have happened anyway, and use this ‘excuse’ to not undertake the difficult capital investments to retrofit or completely change their technology to alternative energy.

In other instances, tree-planting, or reforestation credits, which have little immediate atmospheric benefit were being sold in advance of when the real benefits kicked in. In contrast, the conservation of standing natural forests, which has the most immediate atmospheric benefit, was being ignored and instead standing forests are being converted into biofuel offset projects.

Environmental organizations and others have successfully advocated for projects to pass rigorous standards, have atmospheric benefit, and safeguard biodiversity and cultural values. Offsets are designed to be a transitional tool only, because the conservation and restoration of natural systems for all of its many values will eventually become a fully integrated part of accounting the human economy.

The international community established carbon offsets as a financial instrument aimed at reducing greenhouse gas emissions. Carbon offsets are measured in metric tons of carbon dioxide-equivalent (CO₂e) and may represent six primary categories of greenhouse gases. One carbon offset represents the reduction of one metric ton of carbon dioxide or its equivalent in other greenhouse gases. To generate a carbon credit, a deliberate action is taken that reduces the release of that carbon into the atmosphere or increases the removal of carbon from the atmosphere through sequestration. These are called carbon activities and can include scrubbing smoke stacks, reducing gas consumption or conserving and restoring forests.

A conservation offset is a financial instrument aimed at reducing greenhouse gas emissions through the conservation of living carbon in natural ecosystems or increasing greenhouse gas removal from the atmosphere through restoring natural ecosystems. **Conserving nature remains one of the safest and fastest ways to mitigate and adapt to climate change. Communities also have the opportunity to make offsets “local” and work to mitigate their own emissions.**

Left photo: Garcia River Project - Improved Forest Management developed by the Conservation Fund -Chris Kelly

How do offsets work?

Offsets work by creating financial incentives to reduce emissions by changing approaches—in other words, encouraging people, businesses and industry to reduce greenhouse gas emissions versus a business-as-usual scenario. Carbon credits are subjected to various tests, which help answer the question of whether this activity leads to a net reduction in emissions in the atmosphere:

- 1) How does this activity differ from business-as-usual activities (baseline) and generate carbon credits in addition (additionality) to what would have happened if that action hadn't taken place?
- 2) Will this activity lead to a “leakage” of carbon being emitted elsewhere? For example, if conserving a forest results in increased logging elsewhere, the project has to take into account the impact of this leakage. This leakage may also be offset e.g., one innovative idea is to work with local companies using displaced forest volume from neighboring forests to switch to recycled paper and reduce demand by an equivalent amount of carbon that results from conservation leakage.
- 3) How does the project assure that this carbon will be stored permanently (permanence) for the next 100 years?

The fundamental principle of carbon accounting for conservation offsets is that units of living carbon can be stored or released in ecosystems and these units can be measured and valued in exactly the same manner that units of ancient carbon are stored in or released from fossil fuels. Living carbon is stored in various pools of ecosystems, e.g., trees, foliage and litter, other plants, dead structural material on the forest floor, roots and the soil.

Which activities generate conservation offsets?

There are a range of activities that can generate conservation offsets. At one end of the scale, there are ecological restoration projects on lands that were degraded, where the carbon is slowly captured, e.g., by restoring the forest. At the other end of the scale is the conservation of a mature forest, such as the Lompico Redwood Forest in California, by placing a conservation covenant on the land. This type of forest project is known as a REDD project as it **R**educes **E**missions from **D**eforestation and **D**egradation of a forest.

In between the two project types of restoration and conservation, there is enhanced or improved forest management. For instance clear cutting can be changed to longer rotations where fewer trees are harvested, e.g., Forest Stewardship Council-certified ecoforestry. Many projects include all three activities, such as the Nature Conservancy of Canada's Darkwoods Project in southeastern BC.

Whenever living carbon is being actively conserved, the projects are referred to as conservation offsets.



British Columbia's forests, peatlands, soils and other ecosystems (e.g., wetlands, grasslands) play a critical role in carbon sequestration and storage. (Photo: Chris Harris - Grasslands Conservation Council)

What are the benefits of conservation offsets to communities?

Conservation offsets provide financial opportunities and jobs for conserving and restoring natural areas. Conserved areas can add additional revenue streams for ecotourism or non-timber forestry-related products. Revenue can come in the form of annual payments for restoration or in large amounts up front for REDD projects. This revenue can assist communities trying to acquire and conserve watershed or other greenways and natural lands, maintain territories for more traditional uses or to restore damaged industrial lands. Well designed projects can create long-term revenue, jobs and security for rural communities when more conventional extraction industries are in transition.

Who regulates conservation offsets and who can initiate them?

Conservation offsets, like all carbon offsets, are regulated by registries, like the California Climate Action Reserve (CAR) or in BC, the Pacific Carbon Trust (PCT) or the Voluntary Carbon Standard. These organizations set the standards and project developers implement them on a project basis. Each registry has their own standards, which attempt to practically meet or exceed the international standards set through the United Nation's Framework Convention for Climate Change (UNFCCC). Registries divide projects into land use sectors, e.g., energy projects and forest projects. Conservation offsets can typically be found in Forest and Agriculture Projects. A company, local government or a land trust can become a project developer.

Each registry has a set of tools or protocols to assist the project developers in calculating, reporting and verifying the emission inventories. For example in the international scene methodologies have been developed to comply with the UNFCCC for conserving natural areas. These are known as the REDD standard. These protocols require a series of measurements to be taken that quantify the avoided carbon emissions or increased carbon removals from protecting or restoring the natural area. The methodologies follow the standards developed to comply with a framework of legislation which allows the buying and selling of carbon for that particular activity, e.g., conserving natural forests.

Once a project is initiated, it has to pass many tests including permanence, leakage and additionality before being verified and validated; whereupon carbon credits are issued and can be sold in either voluntary or compliance markets to offset a government/company/individual's emissions. Carbon credits in the compliance markets have registered serial numbers, similar to money, so there is an ability to resell the same credits but no ability to double-account the credits.



Ruth Masters lives next to this growing development in Courtenay. She decided to protect her 20 acre forested homesite, including a forest, river frontage, and public trailway. She donated it to the City of Courtenay and had a conservation covenant registered on it with the Comox Valley Land Trust (photos Sheila Harrington)

What is the role of local governments and conservation offsets?

Local governments in BC have been securing and conserving natural areas since Stanley Park was first created in 1886. Recently, local governments are recognizing their role in conserving forests for additional climate benefits such as reducing emissions and improving nature's ability to adapt. A great deal of both carbon rich and ecologically important lands are within regional boundaries and on private land, such as Garry oak and Douglas-fir, grasslands, western hemlock and other forests.

With the passing of Bill 27, 2008, the Local Government (Green Communities) Statutes Amendment Act, local governments are required to open up their Official Community Plans and provide targets for the reduction of greenhouse gas emissions with policies and actions to achieve those targets. In 2009, 174 local governments also signed onto the Climate Action Charter which confirmed the understanding reached by the Province and the Union of BC Municipalities to take action on reducing greenhouse gases and committed them voluntarily to become Carbon Neutral. The no net deforestation bill will also be significant for local governments as the conversion of land from forestry to subdivision takes place.

Local governments now have legislated opportunities to be innovative and:

- set targets for emissions from degradation and deforestation through land use change;
- offset their own unavoidable emissions from the energy sector through land conservation and;
- capitalize on conservation offsets to help finance this work.

What is the role of First Nations and conservation offsets?

First nations have been stewarding natural areas for thousands of years. Reserves contain some of the most ecologically important lands in BC. In many instances, from the Okanagan to Victoria, the best examples of rare ecosystems and habitat for endangered species lie on reserve lands, or lands in the treaty process. Even with great pressures to develop these lands, and no financial incentives to steward these lands, first nations have persisted in valuing and caring for these natural areas.

Conservation offsets could provide a mechanism for first nations to receive financial compensation for their efforts. Important precedents have now been set, establishing the ownership of carbon on unresolved First Nations territories, such as the carbon sharing agreement under the Haida protocol. This will set important precedents for ownership and how benefits will flow with the conservation of forested lands. Indigenous governments and/or land trusts could provide the model for holding the covenants, thereby establishing permanence over the conservation of the carbon on the land.



The Islands Trust Fund and the Gabriola Island community protected the Elder Cedar (S'ul-hween X'pey) Nature Reserve through the Free Crown Grant program



Photo Carmen Cadrin, MacDougall Forest on Savary Island, donated to the Savary Island land Trust 2009

What is the role of land trusts in conservation offsets?

Land trusts have been conserving land for decades in British Columbia. To date, they have protected more than a million acres. Conservation offsets provide a new source of revenue for land trusts to continue to do the work they do and counter balance the increasing difficulty of raising funds. One of the most onerous standards is demonstrating permanence. How will the avoided emissions be permanently stored for the next 100 years? The current standard in California for ensuring permanence for conserving natural areas is through registering a legally-binding conservation covenant (known as an easement in the US and other provinces in Canada). This provides legal assurance of the permanent avoidance of emissions.

Currently, land trusts and other government agencies are legally enabled to register and monitor these covenants. Land trusts have an established history of preparing baselines, ecological inventories and monitoring covenanted sites on an annual basis, which are all essential criteria of conservation offsets. Land trusts often co-hold covenants with local governments, adding arms-length credibility and professional expertise. In California, the first conservation offsets have been developed by land trusts in conjunction with forest owners and/or local governments. Land trusts provide the long term commitment to land, landowners and communities which is essential to ensure the long term stewardship of carbon in these ecosystems.

What is Living Carbon ?

Living Carbon is an enterprise arm of the Land Trust Alliance of British Columbia, being established as a one-stop shop for developing conservation offsets for land trusts, first nations and local governments. Because it is being set up by a non-profit for the benefit of carbon stewardship, it seeks to generate the highest value and the greatest returns for conservation and to set the highest standards so that problems encountered with offsets in other jurisdictions are avoided. Living Carbon also acts as a long term insurance provider for conservation offsets. By amalgamating properties under one project and banking pools of different ecosystems over time, the risk of liability from losing the banked carbon to an ecosystem disturbance is pooled and reduced. This amalgamation reduces the overall costs of development and registration, maximizing returns back to the participating land trusts, landowners and local governments involved.

Living Carbon (pending trademark) as a name was developed independently and has been used extensively in Canada by Richard Hebda, (formally published in Hebda, R.J. 2007. Museums, Climate Change and Sustainability. Museum Management and Curatorship 22:329-336), who has given permission for its use in the context of the LTABC's new enterprise, Living Carbon. The concept and research on using the emerging offset market for additional funding for conservation lands in BC was initiated by Sheila Harrington, who drafted the terms of reference for the contents of these two seminal reports: Sara J Wilson & Richard J Hebda, Mitigating and Adapting to Climate Change through the Conservation of Nature in British Columbia 2008, and Dirk Brinkman and Richard Hebda, Credible Conservation Offsets for Natural Areas in British Columbia, a Summary, edited by Briony Penn. 'Living Carbon' is a term that is also used independently by The Canopy Foundation in Oxford, England which was founded by Dr. Andrew Mitchell. LTABC has also received permission for its use from Dr. Mitchell, and is developing an ongoing relationship with the Canopy Foundation. It is clearly a term whose time has come. Both Dr. Richard Hebda and Dr. Andrew Mitchell have been promoting the conservation of natural forest ecosystems through the use of this term, Richard with a focus on the temperate forests of BC and Andrew with a focus on tropical rainforests.

What about the markets?

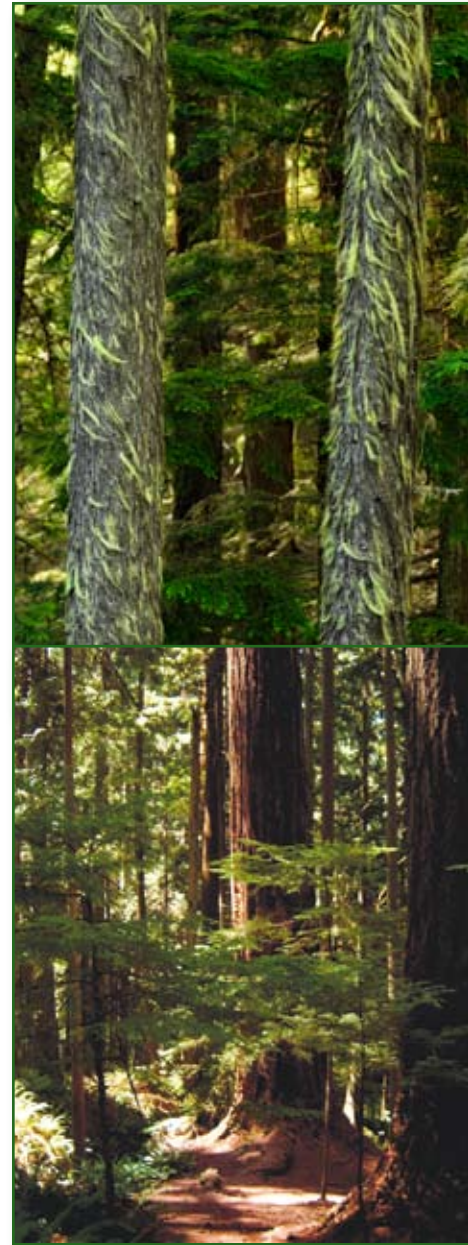
Offsets/credits for emissions can be bought and traded on both compliance and voluntary markets.

Compliance markets are typically created under cap and trade systems. BC is set to establish a cap and trade system and has already set carbon neutral targets for their provincial public sector organizations under Bill 44. The Pacific Carbon Trust (PCT) has been set up by the province to buy and sell offsets in the different sectors of energy and waste management, and draft activities have been proposed for forestry. These draft activities so far have only been for enhanced silviculture projects; however local government, land trusts and first nations can play a critical role advocating for conservation offsets and demanding high standards. Currently, offsets are only available on private lands but the government of BC intends to develop legislation to permit creditable projects to be developed on crown land (which comprises 95% of BC). The “no net deforestation” bill has also just been introduced this spring and this will provide financial mechanisms to conserve lands that would otherwise be deforested, i.e., converted from forest lands to urban development. Prices of a carbon offset on the PCT range from \$10-\$25.

In the smaller, voluntary market individuals, companies, or governments purchase carbon offsets to mitigate their own greenhouse gas emissions from transportation, electricity use, and other sources. For example, one might purchase carbon offsets to compensate for the greenhouse gas emissions caused by personal air travel. The informal voluntary carbon market has existed for well over a decade in British Columbia with a range of standards. Recently, the formal international Voluntary Carbon Standard (VCS) registry began accepting North American projects. The VCS has the highest standards internationally exceeding the Climate Action Reserve (CAR). Although, the prices of VCS offsets are not currently as high as those on the CAR, they still represent a market of very high standards. Prices fluctuate between \$3 – \$15/tonne on the voluntary market.

Both voluntary and compliance markets are converging over standards and prices as world markets adjust to an emerging carbon economy. Regardless of whether the voluntary or compliance market is chosen, projects must have credible, accountable, affordable and trackable methods that meet widely accepted standards so that projects can be assessed, ranked, and their progress evaluated.

Conservation offsets are increasingly attractive to buyers because they involve community groups and provide natural area conservation with multiple benefits: carbon uptake, protection of species and other ecosystem services including water quality, flood control, cultural and recreational values. Conservation offsets provide an understandable and “charismatic” face to help communities adapt to climate change.



These two forests store hundreds of thousands of tons of carbon and are currently being valued within the voluntary offset market. Top: Darkwoods, West Kootenays, protected in 2008 by the Nature Conservancy of Canada (photo Tim Ennis) Bottom: Pack Forest, University of Washington Ecosystem Services Auction, (photo Duanne Emmons)

How can landowners, local governments, land trusts and First Nations work together to conserve land and partially fund it through offsets?



The partnership between TLC, The Land Conservancy of BC and the CRD Capital Regional District resulted in the protection of watersheds, forests, wildlife and recreational lands, now part of the Sooke Potholes Regional Park (photo Nick Stanger)

Land trusts offer the legal mechanism for registering and monitoring binding conservation covenants—meeting the criteria of permanence—and provide the long-term commitment to the stewardship of land, arm's length from political influences. Local governments can work together with land trusts to acquire, hold, and secure conservation covenants on lands for which they want to generate conservation offsets. First Nations can create their own land trusts or work with existing land trusts to secure the permanence needed to meet international standards. There are several partnership models emerging including the recent partnership of the Capital Regional District, collaborating with The Land Conservancy of British Columbia, on acquisition of forested lands with projected revenue deriving from a combination of conservation offsets, regional park tax levies and private sector donations.

Initial pilots suggest that revenues derived from conservation offsets might provide up to a quarter of land costs, even with a conservative estimate of \$10-15/tonne, once the costs of valuation and registration are factored in. With decreasing funding from governments, foundations, and private donors, the conservation offset revenues will provide a critical revenue stream that may make the difference for successful acquisition and management of natural areas.

It only takes creativity, willingness and the partners and tools to successfully conserve natural areas, watersheds, and community resilience. Conservation offsets are a valuable new tool to help us mitigate and adapt to climate change through the conservation of nature, protecting our communities, our economies and our future.

Conservation Values and BC's Ecosystems

BC's ecosystems have already been impacted by human settlement, resource extraction and land conversion. The historical loss of terrestrial ecosystems in British Columbia by biogeoclimatic zone indicates that 48% of the Coastal Douglas Fir zone has been converted to other land use since settlement. The Garry Oak woodlands in the Coastal Douglas fir zone and the South Okanagan Antelope brush grasslands in the Bunchgrass Zone have been the hardest hit and are now the most endangered ecosystems in B.C. The other hotspot in terms of loss of natural cover is the Fraser Valley. In this region, 85% of wetlands and 15% of its streams have been converted to other land use as a result of urbanization and agricultural development.

Definitions

Adaptation – In the context of humanity’s response to climate change, adaptation means the actions, behaviours, initiatives and measures to reduce the vulnerability of natural, wildlife and human systems to actual or expected climate change, from the raising of dikes to biodiversity conservation.

Additionality – Reduction in greenhouse gas (GHG) emissions at sources or enhancement of removals by sinks that is additional to any that would occur in the absence of a carbon project or activity.

Biodiversity – The full variety of life, including genes, species, ecosystems, and the interactions among them.

Carbon credit – Tradable evidence of avoided greenhouse gas emissions. To generate a carbon credit, an action is taken that helps to reduce the release of CO₂ into the atmosphere, for example, greenhouse gas pollution prevention upgrades to a production facility. The credit may be traded or sold to a facility that has been unable to reduce its emissions to allowable levels. A carbon credit is usually equivalent to one tonne of carbon dioxide equivalent.

Carbon sequestration/storage – The removal and storage of carbon from the atmosphere in carbon sinks (such as oceans, forests or soils) through physical or biological processes, such as photosynthesis. Although sequestration refers to both removal and storage, the active ‘removal’ part of the process is associated more with sequestration, so carbon storage is used to highlight that process.

Carbon offset – Act of reducing GHG emissions in one location to compensate for GHG emitted in another.

Carbon sink – An area, such as a forest, grassland, wetland or agriculture soil that, over a long period of time, absorbs more CO₂ than it emits.

Carbon source – An area that, over a long period of time, emits more CO₂ than it absorbs.

Deforestation – The permanent conversion of forested land to another land use or the long-term reduction of tree canopy cover in a defined area to less than 10 percent. (This definition excludes forestry unless it results in the permanent loss of forest cover.)

Conservation offset – The protection of a natural area and its carbon to compensate for GHG emitted or habitat destruction elsewhere. When carbon credits are generated from conservation offsets, then these are the tangible evidence for a reduction in GHG emissions through the conservation of ecosystems.

Ecological restoration – Deliberate activities aimed at returning the original structure, composition, function and species of a degraded forest. Examples of restoration activities include planting native tree species and removing or regenerating forestry access roads.

Forest degradation – Forest degradation is the long-term reduction of the overall capacity of the forest to supply benefits, including wood, biodiversity, habitat and any other product or ecosystem service.

Greenhouse gases (GHG) – Gases in the earth’s atmosphere that absorb or emit heat. An excess of GHG leads to global warming. The main GHGs are water vapor, carbon dioxide, methane, nitrous oxide, and ozone.

Improved forest management – Management practices designed to increase carbon stocks and/or reduce greenhouse gas emissions from forestry activities, while improving forest health and protecting biodiversity.

Leakage – An unanticipated decrease or increase in the greenhouse gas (GHG) benefits outside the accounting boundary of a carbon offset project.

Mitigation – Practices that reduce emissions of greenhouse gases or help to remove them from the atmosphere.

Permanence – The longevity of a carbon pool and the stability of its carbon stocks within its management and disturbance environment.

Reforestation – The re-establishment of trees within a formerly forested area.

Resilience – The capacity of an ecosystem to absorb disturbance, undergo change and still retain essentially the same function, structure, identity and feedbacks.



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For further information on land trusts, conservation tools, covenants, mitigating and adapting to climate change and credible conservation offsets, see www.landtrustalliance.bc.ca

The Land Trust Alliance of British Columbia
building a culture of conservation since 1997