SOCIALCARBON®

Conserving Areas of Biodiversity Importance

A methodology to transform conservation financing.

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About SOCIALCARBON

SOCIALCARBON is an international Greenhouse Gas (GHG) standard focused on Nature-Based Solutions. Utilising leading technology and science, it facilitates the restoration and conservation of natural ecosystems through embedding local communities into projects to ensure lasting sustainable development. www.socialcarbon.org

Contents.

Executive Summary.

Biodiversity is under threat across the globe and so is conservation. New financing models are required to scale global conservation activities to avoid the collapse of ecosystems.

One in four species are at risk of extinction[1] and since 1970 species populations have declined on average 68%[2]. This poses not only a threat to the natural world, but humanity. We cannot survive without nature; it is integral to our existence.

The most significant direct drivers of biodiversity loss are habitat loss and fragmentation (changes in land use) and direct exploitation. Many of these drivers of biodiversity loss can be managed through area-based conservation, with protected areas and conserved areas. COVID-19 and broader economic drivers, coupled with limited data on the effectiveness of conservation activities, has resulted in governments and donors becoming unwilling to provide the funding needed. However, recent studies led by Imperial College London have found that conservation activities across 109 countries reduced biodiversity loss by 29 per cent per country[3]. As stated by Dr Joseph Tobias, one of the researchers behind the report:

"For decades, environmentalists have argued that we need to spend more on nature conservation. Our study shows global conservation spending in the past has had a major positive impact in reducing biodiversity loss today."

The Convention of Biodiversity proposes the protection of at least 30 percent of the planet by 2030. According to McKinsey & Company[4], the benefits of achieving this include, but are not limited to:

- Reduction in atmospheric CO2 by 0.9 gigatons to 2.6 gigatons annually through avoided deforestation and natural forest regrowth. This range is equal to 4 to 12 percent of the annual CO2 emissions reductions needed by 2030 to limit global warming to 1.5°C. Progress could, in turn, have a measurable impact on natural-capital stocks.
- Creation of approximately 400,000 to 650,000 jobs in conservation-management fields such as wildlife management and area infrastructure. Through adjacent nature-dependent markets, natural capital could also support local economic growth, generating or safeguarding on the order of $300 billion to $500 billion in GDP and 30 million jobs in ecotourism and sustainable fishing alone.
- Expansion of the protected habitat of species threatened with extinction by 2.2 to 2.8 times.

To achieve these targets conservation finance needs to grow by between $20 billion to $45 billion a year[4]. Novel approaches are required to access the funding needed to reach these targets.

The carbon markets offer a new financing option for conservation efforts. However, existing methodologies and a narrow focus on impact mean that most conservation areas are not eligible to generate carbon, or do not generate enough carbon credits to justify the investment cost for certification.

This paper proposes a new methodology under the SOCIALCARBON Standard to quantify the carbon removals achieved through conservation activities, whilst embedding community and biodiversity co-benefits. This methodology has the potential to support both indigenous communities and areas of biodiversity importance. Doing so, will lower barriers to entry for projects and communities at the forefront of conservation of natural ecosystems, both of which are currently not compensated for their work. In parallel, it enables donors, governments and private organisations to receive environmental assets for their funding, ultimately shifting conservation away from a donation-based activity to an investment opportunity.

We welcome all feedback on this paper. To share your comments with us, please submit them through our website here:
https://www.socialcarbon.org/contact-us

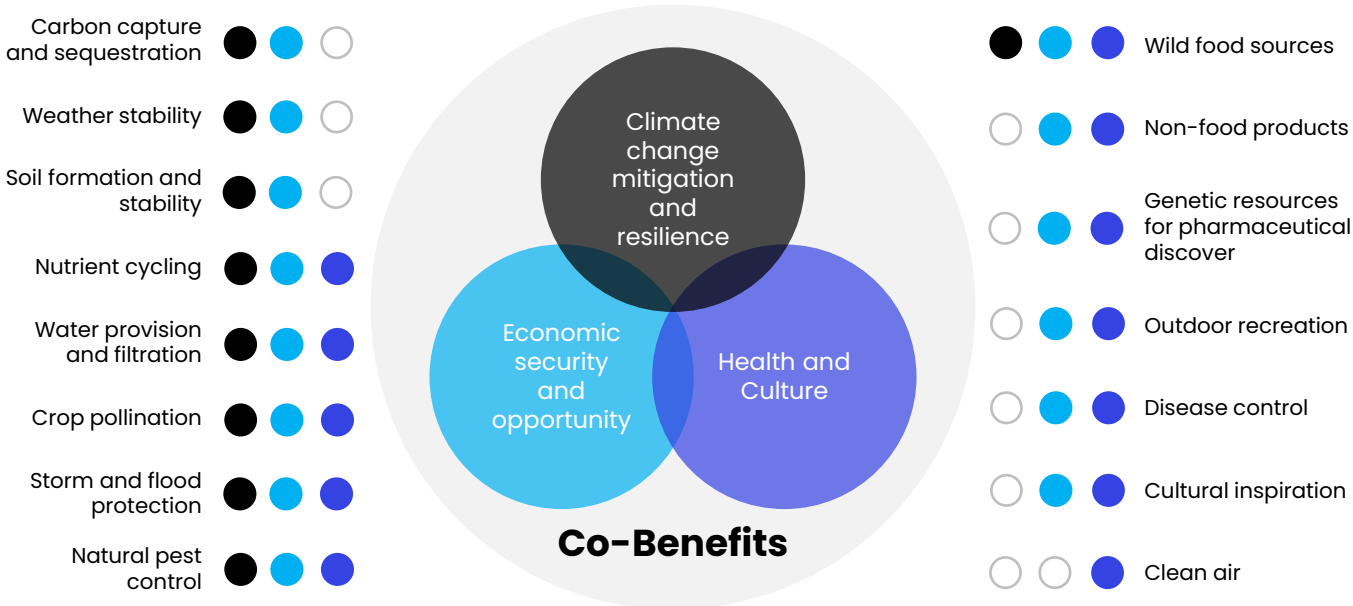
1. The case for expanding nature conservation

The holistic benefits of natural capital.

Natural capital is the most precious asset on our planet. It is the asset which supports humanity's existence - it must be valued and protected.

Natural capital is the planet's stock of natural assets—its biodiversity, air, soil, water, and other natural resources. The UN Convention on Biological Diversity's "30 by 2030" proposal calls for the protection of 30 percent of our planet's surface area by 2030, nearly doubling the amount of conserved land and national waters. It has been proposed that this level of nature conservation is necessary to mitigate climate change, protect communities from extreme weather, prevent the destruction of "ecosystem services" such as crop pollination or water filtration for nearby cities, and halt the mass extinction of species.

We as humans rely on the ecosystem services delivered by natural capital. Whilst it is not widely considered in economic models, and often ignored in financial models, it is the foundation for most human activities. The following diagram, inspired by the McKinsey & Company report on valuing nature conservation[4], summarises a non-exhaustive list of ecosystem services received by natural capital.



The global risks facing natural capital.

Conservation and local communities must be intertwined.

According to a 2019 UN report[5], nature is disappearing globally at unprecedented rates: species are becoming extinct at around 1,000 times the natural level (before human influence). The size of wildlife populations has also been impacted, declining on average 68% since 1970[2].

The world's stock of intact forest land, decreased 7 percent from 2000 to 2013[7]. This not only contributes to increased global carbon emissions, but destroys the home of an uncomprehendable number of species which could help remove greenhouse gas emissions from the atmosphere. In addition, the destruction of natural capital causes a domino effect on nature's ability to respond; the ability of tropical forests to absorb carbon has declined by one-third since the 1990s from the effects of warmer temperatures and droughts[8].

Many of the risks facing natural capital cannot be addressed through conservation alone. Climate change, pollution, invasive species and disease all contribute to biodiversity loss. However, the most significant drivers of biodiversity loss are habitat loss and fragmentation[9]. As a result, protected and conserved areas are key policy and practical solutions to biodiversity loss.

A team of researchers from the Imperial College London found that biodiversity loss within each of the 109 countries analysed depends largely on two factors: human economic growth and conservation spending. Increased conservation spending was shown to reduce biodiversity loss, however increased human economic growth, i.e. through agricultural expansion or population growth, negatively influenced biodiversity. This demonstrates that isolated conservation when coupled with economic growth in the local area diminishes effectiveness of conservation activities.

A new approach to conservation is required. It must be assumed that human economic growth in developing countries will continue. We must identify ways to intertwine local communities with conservation activities, with appropriate funding models that incentivise protection rather than consumption of local ecosystems.

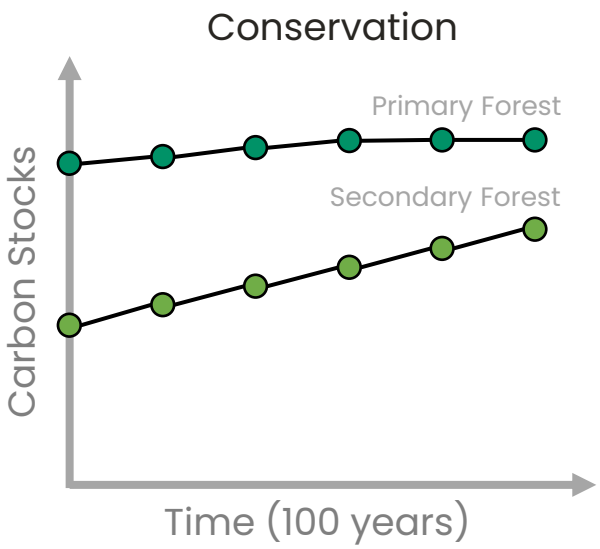
The importance of preserving habitats.

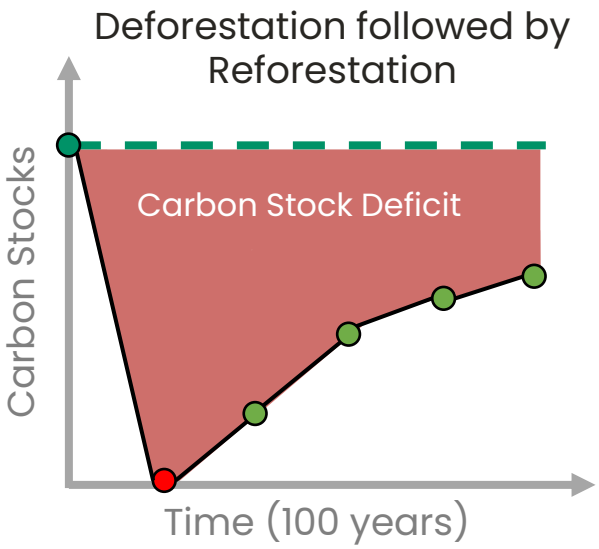
To address climate change and ecosystem degradation globally, we need to preserve existing habitats first and then restore degraded areas.

Natural habitats provide essential carbon sinks, storing millions of tonnes of carbon and helping to manage the natural carbon cycle. In order to address the threat of climate change it is paramount that intact habitats be preserved and protected. Losing these areas will undo any emission reductions achieved through renewable energy.

The scientific community has widely analysed the recovery of habitats, such as forests. What is clear is that recovery is highly variable. A 2021 study examining the recovery of aboveground biomass, species richness and composition in tropical forests in Costa Rica[11] found that regenerating forests reach 50 percent of the biomass of old forests in 50 years. However, only 34% of species composition was restored in the same period.

This further outlines the need to look beyond just carbon. Whilst carbon stocks can recover, the impact of species diversity and composition threatens the long term resilience of habitats. Restoring degraded areas is important, but cannot replicate the diversity and broader ecosystem benefits of naturally occurring habitats. This is currently overlooked in the carbon markets and must be addressed.





2. Climate financing for conservation

Conservation financing challenges.

Conservation funding needs to be scalable and donors need verifiable results.

Historically, conservation activities were financed through public spending, grants or private donations. The challenge is that once economic downturns occur, these funding streams can often dry-up or be significantly reduced.

Conservation financing is increasingly being explored, utilising payment for ecosystem services or carbon credits to generate revenue. According to a 2021 study by the coalition for private investment in conservation[10], small deals, long investment time horizons, high investment risks, low transparency on conservation impact, and particularly lack of bankable deals still hinder the scaling up of return-seeking investments in conservation. In addition, existing methodologies and eligibility criteria significantly reduce the number of projects that are eligible to generate carbon credits; of the areas that have been conserved and experienced minimal deforestation or degradation, there is currently no way they can generate carbon credits.

The strict requirement for additionality, i.e. carbon reductions/removals would not have happened under a business-as-usual scenario, is essential for the carbon market. However, it unfairly impacts those most eligible for financial compensation for environmental conservation. For example, a farmer that cut down 60% of native forest on his land 50 years ago for profit, can now replant the forest and receive carbon credits. Conversely, an indigenous community that has preserved its forests for generations cannot claim any carbon credits. Under this model, the ability of an indigenous community to continue preserving their land will only diminish over time; cultures will diminish over generations and the constant temptation of selling parts of their land to logging companies will persist. These communities need to be compensated for their tireless work preserving essential natural habitats.

Of all the eligible project activities REDD+ (Reducing Emission from Deforestation and forest Degradation) is most likely to be applied to conservation areas. This project type quantifies the emission savings through reducing deforestation in a project area, utilising reference areas and baseline scenarios to quantify the deforestation, thus emissions, that would have occurred without the presence of the project.

This project type is not always suitable for conservation areas, which typically experience low deforestation/degradation rates. In addition, the ability for baseline scenarios and reference areas to be manipulated by the project developer to generate more carbon credits than they should, has resulted in significant criticisms of REDD+.

The role biodiversity has to play.

Without biodiversity monitoring, we ignore an essential measurement of ecosystem health.

Biodiversity has been largely overlooked in the carbon markets. Whilst co-benefit standards can be applied to voluntary carbon projects, it is not mandatory. Often the cost of the additional monitoring and the co-benefits certification process deters project developers from assessing this essential component of projects.

Ignoring biodiversity in nature-based solutions leads to the most destructive forms of human-based afforestation/reforestation, whereby cheap, non-native tree species are planted because of their carbon credit potential and not their role in local ecosystems. This also applies to existing carbon methodologies such as REDD+. Ignoring biodiversity can lead to the forest appearing healthy at face value, but declining under the surface. Biodiversity is an integral component of healthy ecosystems. If it is not monitored, preserved and nurtured, the ecosystems cannot survive, undoing all the emission savings achieved by projects.

A good example of this is in practice can be found with keystone species. These are species that have a disproportionally large effect on their natural environment and help define an entire ecosystem. If these species are not preserved, it does not matter what human intervention is applied; any human-led regenerative activities will be undermined. The Southern Sea Otters found on California's central coast showcase this. Historically hunted for their fur, the decline of this species had a significant impact on local kelp forests. Sea Urchins, a favoured diet for Southern Sea Otters, experienced a population boom following the decline of their natural predator, ravaging local kelp forests. Under this scenario, human-led kelp regeneration projects would be undermined by the over-population of Sea Urchins. Fortunately, recent conservation efforts and fur bans have resulted in a bounce-back in the Southern Sea Otter population, helping to stabilise the now unbalanced ecosystem.

This can also be applied to other species, such as elephants, which play an essential role in ecosystems managing vegetation growth and fertilising the land.

When assessing the baseline scenarios under existing carbon methodologies, poaching and biodiversity loss are not considered. This needs to be re-evaluated.

3. A new funding model for conservation

Our approach.

SOCIALCARBON is proposing a new methodology to quantify the GHG removals achieved through conservation activities.

The carbon markets have an important role to play in conservation. They offer a multi-faceted approach for finance, enabling donors to receive environmental benefits from their funding, whilst offering project developers greater access to financing; the demand for environmental assets increases the scope of potential funders.

SOCIALCARBON is proposing the development of a new methodology under its GHG Standard that will quantify real, conservative GHG removals, whilst embedding biodiversity monitoring and local community engagement. The goal is to offer a tool to finance conservation efforts and incentivise the restoration of natural habitats to their pre-industrial level.

Focused on measured removals

The methodology will look exclusively at GHG removals achieved through conservation activities and afforestation/reforestation activities (if coupled with conservation). Examining the project area only, the methodology eliminates the issues associated with other methodologies that require predicted baseline scenarios and reference areas. Instead, carbon credits are generated exclusively from measured incremental carbon stock growth, thus carbon removals in the project area.

Tracking biodiversity

Alongside the co-benefit tracking mandated for all SOCIALCARBON projects (which includes monitoring biodiversity) project developers will also need to track plant species richness through Spectral Variability analysis using remote sensors. This will provide an essential metric for projects to track the effectiveness of their conservation activities over time. In addition, through a blended approach of onsite monitoring of biodiversity through the existing SOCIALCARBON indicators and spectral variability analysis, the project will be able to demonstrate its impacts on local biodiversity.

Embedding local communities

All projects will be required to embed local communities into project activities at a minimum. This ensures that local stakeholders become part of the solution and have a vested interest in the project's success. This would be further reinforced through profit-sharing agreements between the project developer and the local community.

Eligible project areas

The methodology will apply to terrestrial areas that demonstrate importance to biodiversity, as defined by the IUCN[12]. This includes:

- registered indigenous land; or
- a terrestrial area of biodiversity importance.

The goal of the methodology is to facilitate the conservation of a broad range of ecosystems. Ranging from savannahs and mangroves, to tropical rainforests. Provided the area meets the requirements set out above and is on-land (mangroves are considered eligible), it will be eligible. This is not to say that all regions will be financially viable for project development - some areas are expected to generate fewer carbon credits than others. For example, pure grasslands will likely sequester less carbon annually than tropical rainforests. Project proponents will need to assess this before starting projects.

Additionality

Project proponents must demonstrate that the project area is vulnerable to degradation or deforestation without the presence of conservation activities. Poaching of large fauna and keystone species will be considered degradation, given the importance these species have in maintaining healthy ecosystems. Evidence of these threats will require historical data and trends for the project area or local region.

In addition, if conservation activities already exist in the project area, the project proponent must demonstrate that a majority of existing and/or historical conservation activities have been/are expected to be financed through donations and/or grants.

By demonstrating compliance with these two variables of additionality, the project proponent will have demonstrated:

1. Without conservation the project area is vulnerable to degradation; and
2. They do not have a sustainable source of funding.

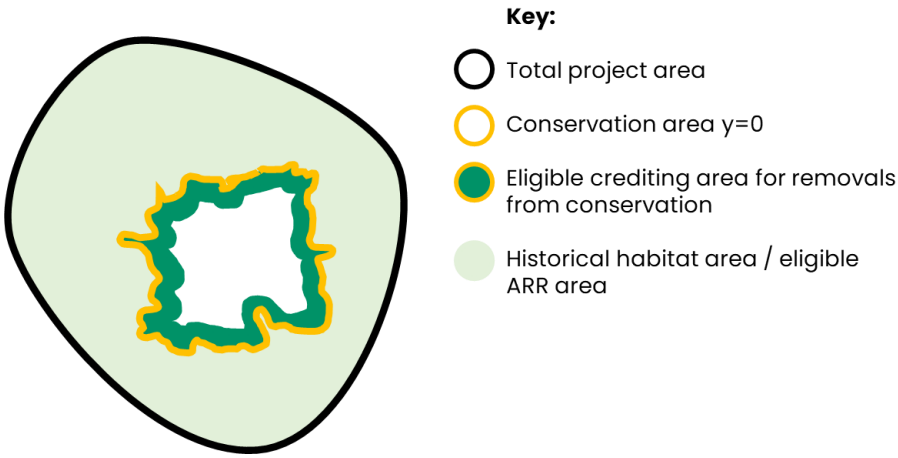
Ensuring conservativeness

It is imperative to SOCIALCARBON that projects generate conservative quantities of carbon credits that finance project activities, but do not result in oversupply and negative impacts on market integrity.

Depending on the size of the project, removals will be capped to ensure removals are only quantified for the areas most vulnerable to degradation. For projects areas greater than 20,000 hectares, the quantification of GHG removals will be limited to an area 5,000 meters within the existing conservation area's perimeter. If afforestation/reforestation activities are planned within the project activities, these must occur outside the current conservation area.

The project developer must map the conservation area at year =0 (baseline). Many national parks and protected areas have experience historical degradation, which has not been restored due to a lack of funding. This methodology ensures that existing preserved areas are protected, meanwhile historical habitat areas (pre-degradation) can be restored.

The following diagram outlines an example mapping of a project area and how the methodology can be applied for carbon credit generation.



Measurement, reporting and verification (MRV)

Project proponents will be able to quantify GHG removals through three approaches, direct measurement, remote sensing and/or default values (depending on the project location and baseline vegetation type). Suppose the project area is predominantly primary forest, direct measurement offers the most suitable approach due to the subtle changes in biomass. Meanwhile, default values may be applied if there have been government-published values for annual biomass growth/carbon removals per hectare for different native vegetation types in the host country.

Enhancing transparency and trust.

Greater transparency and trust is required to scale conservation efforts and attract more finance.

The proposed methodology has been designed to minimise subjectivity and ensure transparency in environmental benefits. The elimination of reference areas ensures that only impacts delivered within the project area are quantified. In addition, remote sensing will be recommended to increase the auditability of project results. This is an essential component of carbon markets that has been overlooked; depending on the scale of project types and habitats, anyone should be able to audit the results claimed by a project using the same remote sensing approach.

Transparency and trust in a project's environmental benefits must also be matched with broader credit transparency and transaction trust to facilitate carbon credit-financed conservation at scale.

Transparency of credit provenance and transaction history

Transparency of carbon credit ownership and provenance is another requirement to scale conservation through the carbon markets. Credits need to be auditable and the risk of double claiming should be minimised. SOCIALCARBON's registry utilises leading-edge blockchain technology to ensure each carbon credit is unique and auditable. Every issuance, transaction, retirement, and cancellation is fully traceable offering funders and carbon credit buyers an opportunity to track their carbon credits' provenance and transaction history.

Trust in transacting carbon credits

Project developers must be able to securely transact their carbon credits with buyers and funders for carbon-based finance to be feasible. The existing format of the carbon markets, particularly with manual registry updates, has resulted in a reliance on brokers to facilitate transactions. This not only reduces transparency of credit provenance and transactions, but increases costs for project developers.

To address this the SOCIALCARBON registry is integrated with a peer-to-peer marketplace, enabling project developers to transact their credits direct to end buyers in a trustless, secure manner. All transactions are managed by smart contracts, eliminating the need for escrow accounts or trusted intermediaries, and enabling automatic registry updates.

Lowering barriers to entry.

Broader innovations are required to lower barriers to entry and scale conservation efforts.

Project financing

Project financing is a common barrier to entry for the carbon markets. The cost of implementing projects, including certification costs, means projects often take 2 to 3 years to reach their breakeven point. These upfront costs are often a deterring factor for project developers. To scale conservation using this methodology, project financing must be available.

Fortunately, SOCIALCARBON is working with a leading technology firm called Biodiversity & Ecosystem Futures (BEF) that has developed a new fundraising instrument called Green Impact Units. This enables project developers to access upfront funding for the first 2 to 4 years of their project, allocating a percentage of the carbon credits generated to the funders. Fully integrated with the SOCIALCARBON registry, every time the project issues carbon credits, the funders are able to receive their entitled amount of carbon credits in an automated manner.

Education

There is a general lack of understanding by communities and local NGOs on the development of carbon projects; projects require several documents and procedures to issue carbon credits. This adds further barriers to entry, often forcing landowners to turn to carbon retailers for their expertise and funding. Whilst this overcomes the education barriers facing landowners, it comes at a cost – the carbon retailer typically takes at least 30% of the carbon credits generated.

To truly scale conservation activities, landowners need to be empowered to design and develop their projects independently. Technical competencies can be outsourced for monitoring activities, but landowners need to understand the core components required to develop a project, many of which do not require technical expertise.

SOCIALCARBON, working with BEF, has developed a digital community called WeRestore. This free platform enables project developers and landowners to share knowledge, insights, and engage in discussions with one another. In addition, a virtual training course is being developed to provide a step by step guide through the lifecycle of a carbon project and the components required for implementation.

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