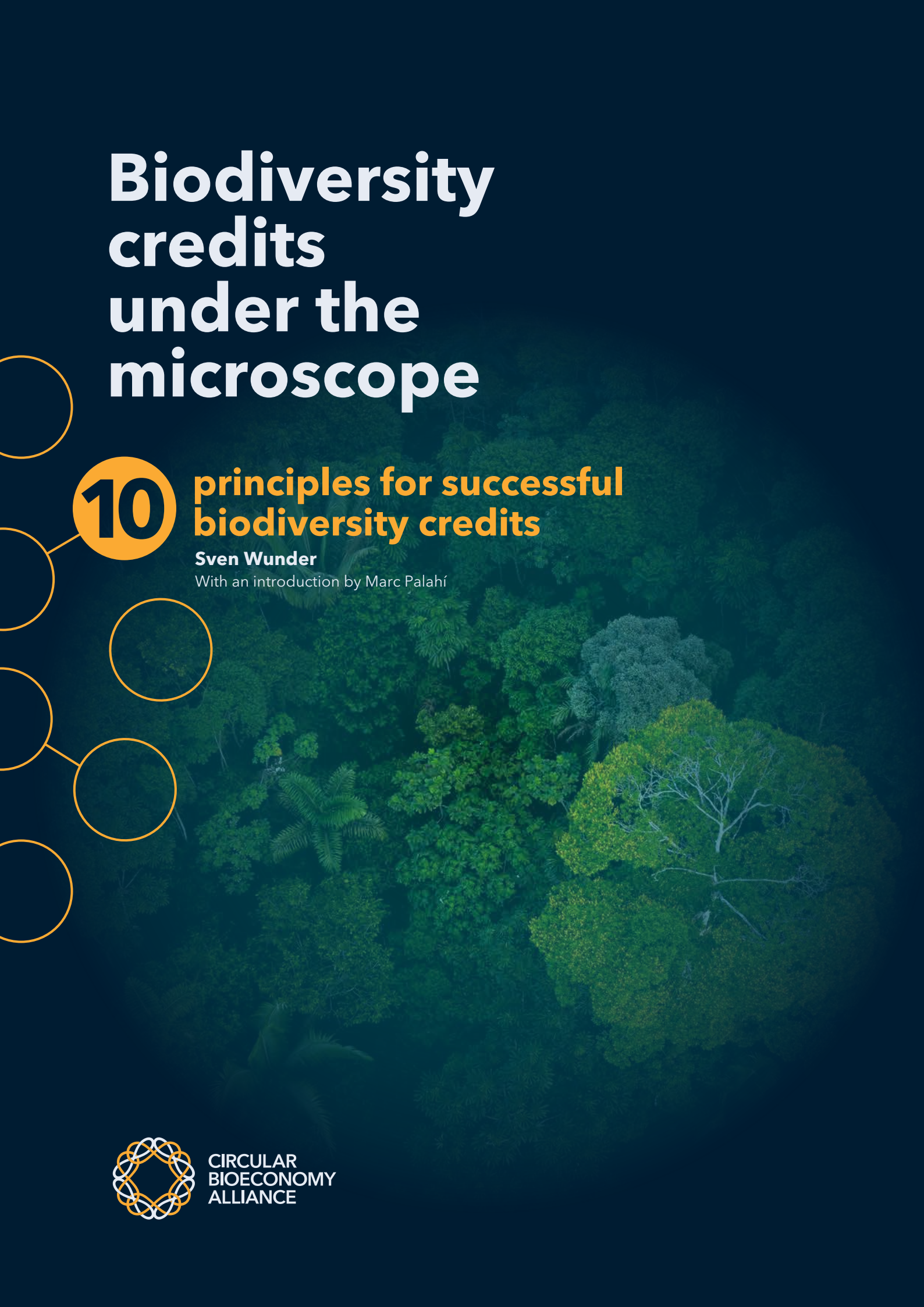
# Biodiversity credits under the microscope

## 10 principles for successful biodiversity credits

**Sven Wunder**
With an introduction by Marc Palahí



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# Introduction

**The linear fossil-based economy of the industrial era has reached its limits, altering nature, climate and the environment to an unprecedented degree. The science is clear: we need to rethink our economy if we want to rewrite our future.**

This requires addressing the past failure of our economy to value nature, creating nature-based-and-positive business activities and deploying financial capital accordingly. Transitioning from an extractive fossil-based economy to a regenerative economy powered by and prospering in harmony with nature - a nature-first economy - is the defining question of our times.

This transition of our economy requires fundamental and systemic changes, including overcoming the past dichotomy between ecology and economy. For the last 200 years ecology has just been a variable (if at all) in the equation of our economy. The future requires realising that our economy needs to become just a variable in the equation of the broader ecology of the planet.

Businesses need to play a key role in this process – first by understanding their impacts and dependencies on nature, but ultimately by investing and working in symbiosis with nature to transform and rethink their value chains rather than to offset for its failures.

This process of transforming (insetting) value chains, including the landscapes upon which they depend, is crucial to move towards a nature-first economy. It will be challenging depending on the sector, but it should be the final goal.

Advances in science and technology mean that we have the basic knowledge to make the transition, but it will require decades. In parallel to the landscape-to-value chain transformation of key industrial sectors, which should be the central focus, high-integrity nature markets that enable private investment in nature conservation and restoration can be an important complement. They allow businesses to invest beyond their value chains but still in relevant landscapes for their business and stakeholders while putting forward their own value chain transformations to achieve a nature-positive business.

There are many instruments and economic incentives which could prove useful in nature markets. Here we explore biodiversity credits – an economic tool which offers private companies the opportunity to finance nature restoration and conservation activities that deliver net positive biodiversity gains.

Biodiversity credits are raising high hopes of mobilizing funding to address the global biodiversity crisis, but their success, in my opinion, does not just depend on sound principles and standards that should be used to structure investments. To me the crucial question is to understand their potential role within the wider nature-transition of our economy which needs to address the root causes of the problem, which are systemic and cannot be offset.

Therefore, it is crucial to understand what potential buyers need in their broader context of change to be able to drive demand. A biodiversity credit will only sell if it provides a well-defined and recognised business-relevant benefit, preferably within a business' own operations and supply chains, given EU legislation like the Corporate Sustainability Reporting Directive (CSRD) and new nature disclosure frameworks.

Our CBA policy brief sets out 10 principles for successful biodiversity credits, learning from previous experiences of the carbon and biodiversity offset markets.

***Marc Palahí,*** *Circular Bioeconomy Alliance CEO*

# Could new economic tools help us tackle the global biodiversity crisis?

Our planet is rapidly losing the variety of living things inhabiting it, from species to habitats and genetic variability. This is mainly due to the way we use and transform land- and seascapes, but climate change, overexploitation, pollution and invasive species further add to pressures. Our mainstream global development model featuring economic growth is clearly also to blame. But could economic tools help us mitigate the global biodiversity crisis, providing better incentives and more financial flows to benefit nature conservation?

# What are biodiversity credits and what do they require?

Biodiversity credits are being launched as a new instrument, raising high hopes of mobilizing funding to address the global biodiversity crisis. They are currently in the stages of standards development and pilot applications.

Commodifying biodiversity outcomes calls for commensurability (in nature-positive 'currency units'), tradability (between market actors), a clear benefit attribution (to credit owners), and storability (over time, e.g. mitigation banks). These market-desirable features are clearly challenging to implement.

# How do biodiversity credits differ from other tools?

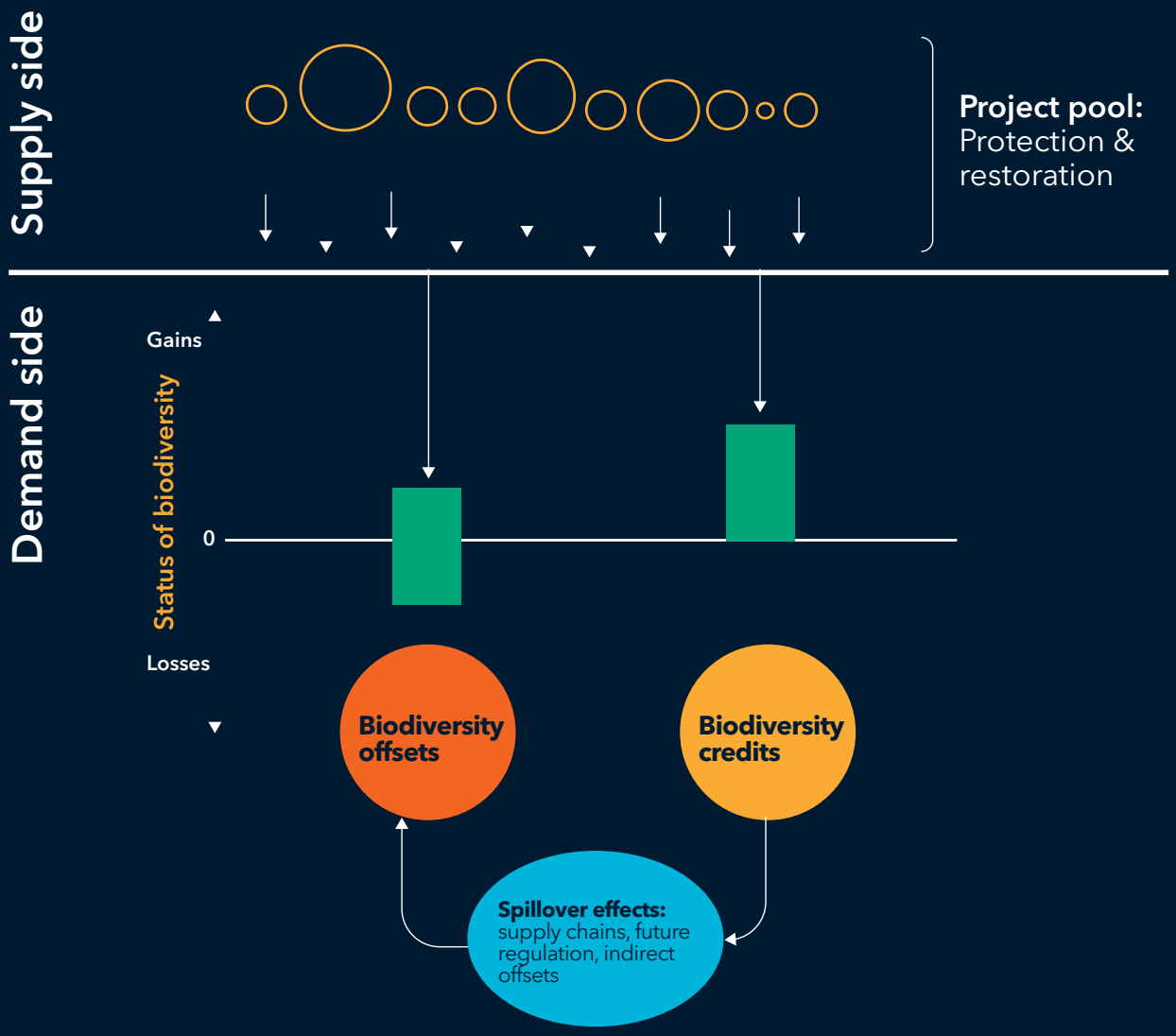
The development of biodiversity credits has been inspired mainly by two other market-based tools: carbon credits and biodiversity offsets. Figure 1 explains how biodiversity credits differ from biodiversity offsets. Both instruments draw on the same supply-side pool of "projects" with on-the-ground actions to either protect or restore biodiversity, compared to what would have happened without these actions.

Biodiversity offsets compensate for residual losses from development projects, and often relate to legal compliance markets mandating 'no net loss'. However, biodiversity credit transactions would instead not be loss-related: these would constitute strictly voluntary, nature-positive corporate actions after no-net-loss goals have already been achieved.

Biodiversity credits and offsets have the same supply sources, while their demand sides are designed to be separate. However, some demand-side spillover effects could occur, for instance relating to offsetting hard-to-quantify value-chain impacts of companies, or credits being used to anticipate future offsetting regulations. While the two concepts should be kept distinctly separate so that credits do not become 'offsets on the cheap', the borderline between the two will foreseeably also not be completely impenetrable.

**Figure 1**

Biodiversity credits vs. offsets: similarities and differences



# What past lessons can we learn?

To become successful, biodiversity credits need to demonstrate environmental effectiveness, while respecting human rights and improving the welfare of people in landscapes receiving investments. But before growing beyond their current infancy stage, biodiversity credits can clearly learn a lot from other members of the family of market-based conservation instruments, such as payments for environmental services (PES) and environmental certification, and in particular from their lookalike older siblings, biodiversity offsets and carbon credits. Biodiversity credits will face similar challenges to biodiversity offset and carbon markets – and additional ones, such as rendering the complex concept of biodiversity commensurable (see below).

Over recent decades, both these alternative environmental markets have been expanding rapidly, and were also used extensively for nature conservation purposes. They could thus also inspire pro-biodiversity actions. Nevertheless, harsh critiques of existing crediting/ offsetting tools have recently emerged. Scientific impact evaluations suggest that in their current form many deliver 'hot air' instead of additional environmental protection: they do not protect things that were genuinely threatened, nor subsidize new environmental assets that would not have been created without the credits. By providing an illusionary sense of mitigating action, a credit that is not genuinely credible would clearly make things worse – pretending to address an environmental crisis, but in fact failing to make a positive difference. Credits or offsets could in the worst case become sophisticated tools of smoke and mirrors to justify business as usual.

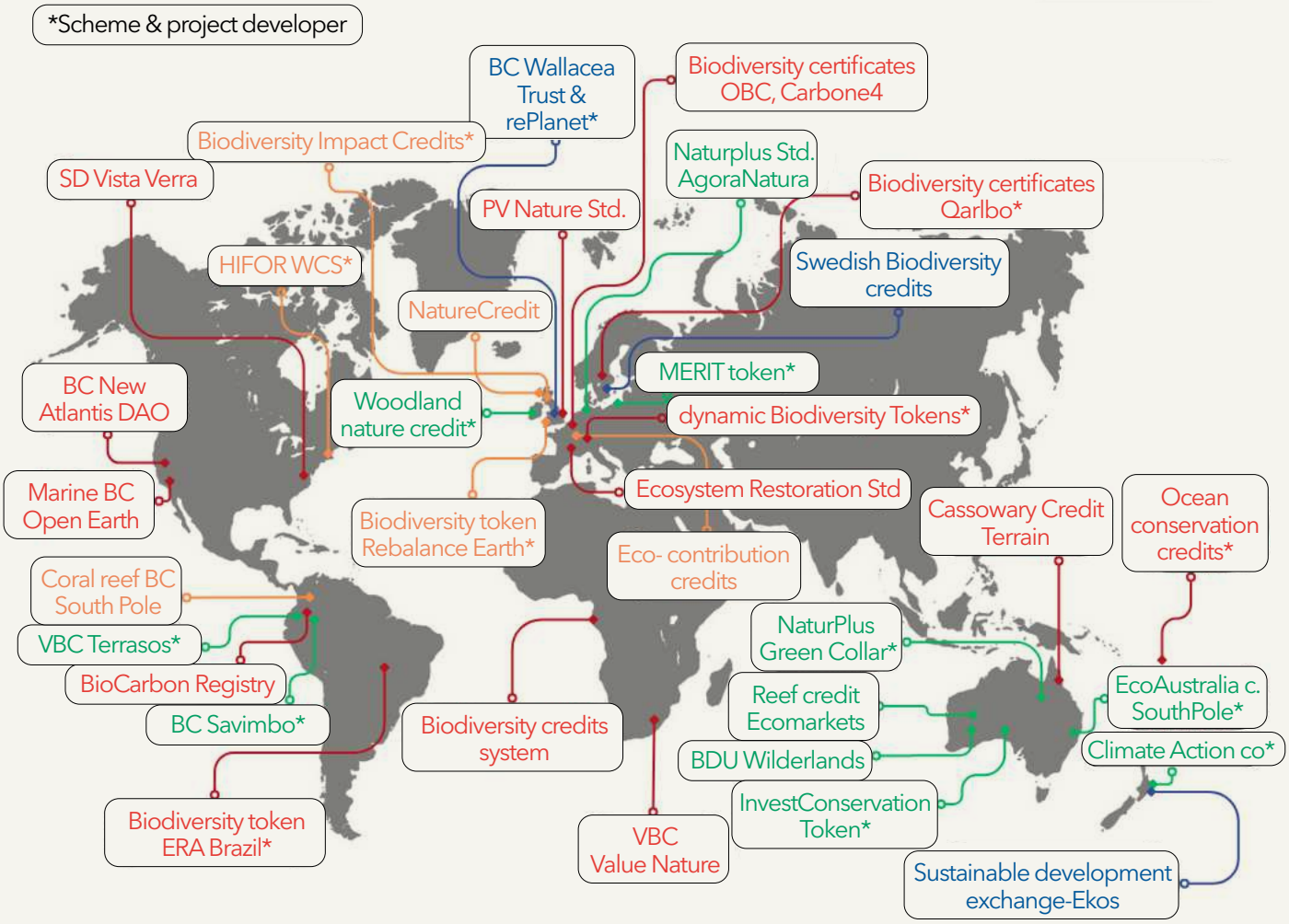
# Mapping the emerging market for biodiversity credits

We took a closer look at how biodiversity credits so far have been conceptualized and put to work, using grey literature and online sources, supplemented by direct consultations with proponents.

By August 2023, we had identified 34 biodiversity credit schemes globally at stages ranging from preparational to operational (see Figure 2 ). Regions and countries with a tradition for using other market-based instruments, such as the UK, Northern Europe, Australia, New Zealand, or Colombia have also been at the forefront of piloting most schemes, and the most advanced initiatives. In turn, just two initiatives are active in Africa; none in Asia.

## Figure 2

Map of biodiversity credit initiatives: operational state and market function (n=34; September 2023).




## KEY

- **Fully operational (green):** currently selling credits
- **Pilot, operational (blue):** methodology ready; credits from pilot projects sold
- **Pilot, testing (orange):** methodology released/launched; projects being tested without selling credits
- **In preparation (red):** Scheme being developed/consulted

Scheme developers without "*": develop scheme/methods/standards for measuring and issuing credits
Project & scheme developers (*): integrate credit and project functions.
Source: Wunder et al. (2024).

**Photo:** tristanbnz/AdobeStock

# Current development trends

We then contacted implementers with our supplementary questions regarding biodiversity metrics, methodologies, and credits issued (e.g., outcomes, baselines, ecosystem-services bundling, timing). Early evidence from these pilots shows both encouraging and troublesome trends. The predominantly **good news** are:

1. ***Power of engagement:*** Considerable stakeholder enthusiasm surrounds the testing of new methods for a global biodiversity-targeted incentive and financing tool, which is globally lacking so far.
2. ***Market efficiency promise:*** A global market for biodiversity credits in principle comes with the prospects of a data-driven market-based allocation of financial resources, set to benefit the globally most rewarding investments for biodiversity conservation.
3. ***Small piloting steps forward:*** Some on-the-ground progress in piloting the approach has been made, in particular in Anglophone countries traditionally favouring market-based conservation approaches.
4. ***Technologies for commensurability:*** For the tricky matter of defining adequate biodiversity change metrics for trading, some interesting approaches are being tested, and new technologies are put to use.
5. ***Social equity principles featured:*** Currently stated benefit-sharing rules in emerging credits consider indigenous people and local communities (IPLC) more favourably than was the case in carbon markets.

Unfortunately, in other ways the **emerging biodiversity credit initiatives have till now widely failed to learn from the common mistakes** made in the carbon and biodiversity offset markets:

1. ***Awkward crediting pathways abound:*** Many schemes will issue credits based on activities completed, independent of project-monitored outcomes; various schemes have not even committed to third-party verification. Surprisingly, many credit schemes are thus currently not really performance-based.
2. ***Non-rigorous baselines dominate:*** Baseline setting is widely non-transparent, and often manipulable: project proponents conveniently prioritize (excess) flexibility, leading to potential over-crediting by exaggerating business-as-usual baselines. This constitutes the single-largest threat to the integrity of biodiversity credits.
3. ***No impact evaluation:*** None of the initiatives seems set up for ex-post rigorous impact evaluation; barely a few plan to monitor also control sites. Hence, they will never gain certainty about what outcomes are attributable to their own actions.
4. ***Credits could become 'offsets on the cheap':*** Credits may possibly be abused by some firms to substitute for compliance offsets without 'like-for-like' equivalence, which directly conflicts with the nature-positive narrative pushed by proponents.
5. ***Lacking external oversight:*** The biodiversity credit market architecture currently emerges as fully private-sector self-regulated, with all the known dangers this entails for environmental integrity, e.g., not fully independent certifiers, or few incentives and capacities for enforcement.

Judging from these problems observed, many biodiversity credit schemes may be set to repeat the carbon market history, i.e., interventions predictably scoring low on additionality and permanence. To avoid carbon and offset market mistakes in the future, much more robust baselines, standards and governance safeguarding ecological outcomes are required in biodiversity credit design, implementation, and impact evaluation (see below).

Environmental NGOs and multilaterals, national environmental agencies, indigenous people and local communities (IPLCs), and even environmental researchers are all candidates for places at the table of regulating bodies providing the better oversight these markets require. Yet, quality credits would also be more expensive than those cutting integrity corners, which per se may dampen the expected biodiversity credit boom.

# 10 principles for successful biodiversity credits

Based on our research, we believe biodiversity credits should respect the following ten principles, which also will require managing a series of functional tradeoffs.

## 1. Mobilize finances

Voluntary biodiversity credits should be able to stimulate private investments, eventually allocating new financial resources towards global priority areas of biodiversity conservation, tangibly supporting strategies of both avoiding threats and restoring biodiversity.

## 2. Complement, not substitute losses

Biodiversity credits should be used strictly as nature-positive supplements, not undercutting offsetting systems that are set to reduce harm to threatened ecosystems, and not becoming substitutes for regulation to address biodiversity loss. Credit-purchasing organisations would need to already have in place trustworthy strategies for scaling down their own biodiversity-damaging impacts. The potential certification of credit buyers deserves consideration.

## 3. Be ambitious in site and activity selection

Credit-financed actions should fight genuine but realistically addressable biodiversity threats—rather than picking the lowest-hanging fruit of high-and-far de facto unthreatened areas, as has been observed for many carbon credit-based projects.

## 4. Adopt high-integrity global biodiversity standards

The biodiversity measures selected for subsequent crediting need to be ecologically multifaceted, yet also aggregating diverse indicators into the composition of meaningful tradable units. Progress should be measured not only in intervention areas, but also in comparable control sites, providing perspective on comparative performance.

## 5.

## Use performance-based crediting pathways

Marketed credits need to be directly conditional upon progress in terms of monitored biodiversity outcomes, rather than just representing additional project activities completed, and their hoped-for future benefits for biodiversity.

## 6.

## Adopt realistic baselines

Realistic baselines are quintessential for the environmental integrity of biodiversity credits, i.e. considering what would plausibly have happened had biodiversity credits not financed a given action. Dynamically adjusted baselines, informed by what occurs in control sites, allow the attribution of impacts to credit-financed actions. Ideally, ex-post crediting (issued only after actions have made an observable endpoint difference) would provide credit buyers maximum security that what they are purchasing is not 'hot air'.

## 7.

## Prioritize durable environmental performance

Proponents should select, design and implement adaptive conservation strategies that perform well in terms of the traditional set of environmental impact indicators:

- **high additionality** (making a biodiversity difference vis-à-vis a baseline)
- **high permanence of biodiversity gains** (given risks of irreversible losses)
- **limited leakage** (spillover of contained threats to no-intervention areas).

## 8.

## Act equitably, pursuing social safeguards

Credits should equitably share economic benefits locally, while trying to actively minimize local risks and costs, such as land grabbing, livelihood losses, or social tensions.

## 9.

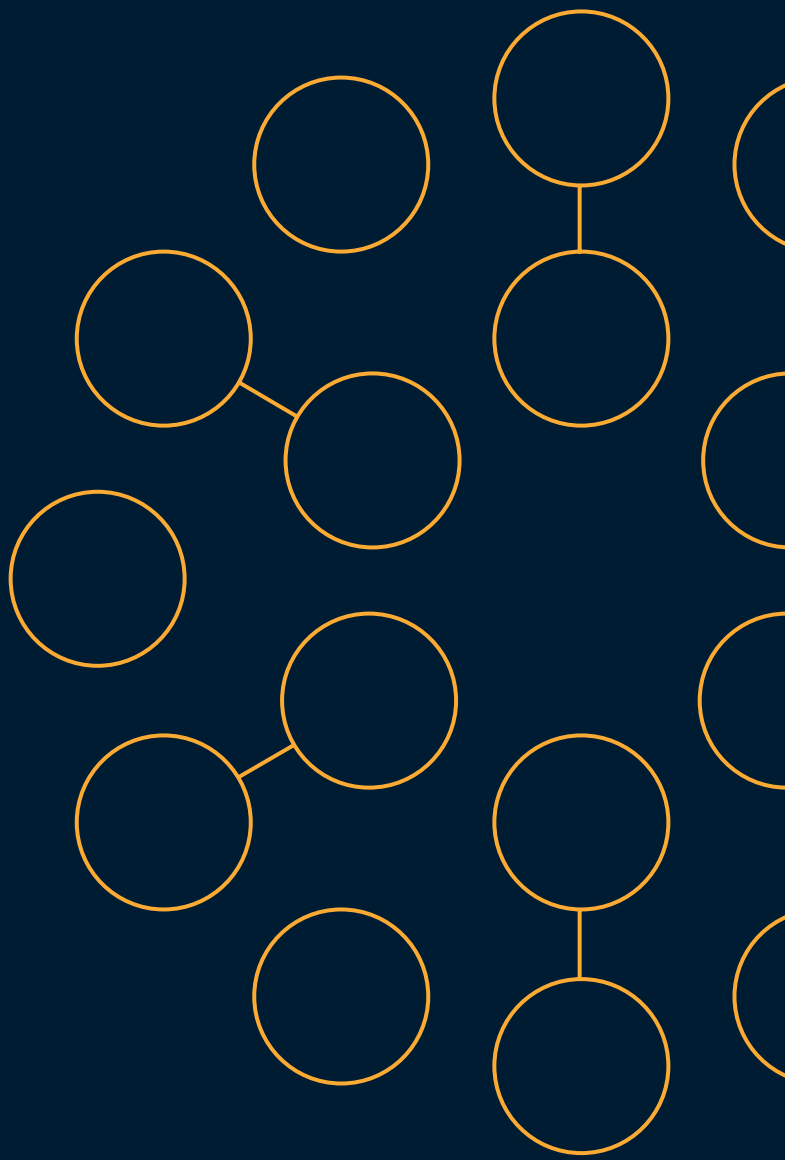
## Broaden external oversight

Not only do credits need to be externally certified; the entire institutional architecture of credit schemes needs to move away from 'private sector only' self-organised markets. As carbon markets show, the vested interests of making rules too flexible, cutting corners in monitoring progress, and eventually gaming credit schemes will over time tend to prevail. Governance of biodiversity credits therefore needs the participation of environmental NGOs and public agencies, IPLC, and other relevant stakeholder groups.

## 10.

## Evaluate environmental and social impacts

Recurrent rigorous scientific evaluations of environmental and socioeconomic impact should be scheduled in early on. This would boost public confidence that credits are for real – demonstrating that interventions are reaching their objectives – and also providing opportunities for adaptive learning, and the adjustment of the design and implementation of actions according to the respective evaluated impacts ('what works, what doesn't').



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