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Business Strategy and the Environment

WILEY | Business Strategy and the Environment

RESEARCH ARTICLE OPEN ACCESS

Elaborating the Motivations and Attitudes Driving Interest in Voluntary Biodiversity Credits

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Received: 30 January 2025 | **Revised:** 4 December 2025 | **Accepted:** 9 February 2026

Keywords: barriers | biodiversity finance | drivers | strategy | voluntary biodiversity credits

ABSTRACT

Global biodiversity loss has prompted the search for new sources of conservation finance, such as voluntary biodiversity credits (VBCs). However, despite optimistic market projections, current uptake of VBCs is limited. Adopting an interpretive approach, we analyse 21 semistructured interviews with early market actors (buyers, sellers, intermediaries) in the United Kingdom to elaborate the motivations and attitudes fuelling interest in VBCs. Specifically, our findings show the *drivers* (including economic, environmental, socio-cultural) and *barriers* (including financial, reputational, methodological, capacity and policy) that are shaping the nascent market for VBCs. Our study has implications for theorising a changing interpretive domain in which biodiversity loss is becoming more central to strategy. We also offer practical implications from our findings on factors affecting market development.

1 | Introduction

Global biodiversity loss is threatening ecosystem integrity and posing systemic risks for societies and economies (Díaz et al. 2019). More than half of global GDP is moderately or highly dependent on nature (World Economic Forum [WEF] 2020), with the remainder indirectly reliant on functioning ecosystems. Halting biodiversity loss requires transformative policies, mechanisms and incentives that promote large-scale financing (Deutz et al. 2020) to address the global funding gap estimated at $942 billion annually (Bromley 2024). New strategic options are required to achieve the biodiversity financing needs, which are seven times the current levels of conservation investment (Seidl et al. 2024). Nascent markets for biodiversity credits are one mechanism expected to address the gap in public sector financing (Wunder et al. 2025), as reflected in the 2022 Kunming-Montreal Global Biodiversity Framework (GBF) targets 19c and 19d (Convention on Biological Diversity 2024).

In this article, we explore the nascent market for voluntary biodiversity credits (VBCs) defined as *certificates representing measured and evidence-based units of positive biodiversity outcome that is durable and additional to what would have otherwise occurred* (Biodiversity Credit Alliance [BCA] 2024a). Such credits are expressed in terms of additional biodiversity gains without being linked to any particular loss (Wunder et al. 2025; Ducros and Steele 2022). In this early stage of market development, there are different views about the intentions of VBC purchases

Abbreviations: BCA, biodiversity credit alliance; BNG, biodiversity net gain; BSI, British Standards Institution; BVCM, Beyond Value Chain Mitigation; CBD, convention on biological diversity; CSR, corporate social responsibility; CSRD, Corporate Sustainability Reporting Directive; Defra, Department for Environment, Food and Rural Affairs; ESG, environmental, social and governance; EU, European Union; GBF, Global Biodiversity Framework; IAPB, International Advisory Panel on Biodiversity Credits; IPLCs, indigenous peoples and local communities; NGO, nongovernmental organisation; SBTi, science based targets initiative; TNFD, taskforce on nature-related financial disclosures; UK, United Kingdom; UN, United Nations; UNDP, United Nations Development Programme; VBCs, voluntary biodiversity credits; WEF, World Economic Forum; WWF, World Wide Fund for Nature.

and the claims made around these purchases (WEF 2022). For instance, some may be attracted to the potential upsides of VBCs, such as financial gain and other benefits, such as increasing employee and customer loyalty, fulfilling corporate social responsibility (CSR) objectives, reputation gain and mitigating nature-related risks (BCA 2023; WEF 2023; Wunder et al. 2025). However, VBCs may also generate downsides, such as risks of greenwashing accusations and reputational damage (Ducros and Steele 2022; WEF 2023; Nature Finance 2023; BCA 2023). Corporate stakeholders are particularly cautious about reputational risks and greenwashing accusation, as scepticism towards environmental claims can undermine a company's social legitimacy (Krause et al. 2021). Such scepticism particularly arises when firms pursue environmental initiatives primarily to deflect regulations or public scrutiny rather than create a genuine impact (Bansal et al. 2025). This applies to VBCs since, as Wunder et al. (2025) reveal, 'market enthusiasm and lofty expectations' about biodiversity credits are not matched by current market activity, estimated at US $2–$8 million. Consequently, there are concerns that biodiversity credits may become the next conservation fad (Wunder et al. 2025). As such, VBCs may become part of a 'new world of greenwashing' in which future washing becomes prevalent as 'unsupported promises for future' are used to build 'attractive hope,' but are unsupported by 'verifiable statements of current performance' (Montgomery et al. 2024, 223–24).

Academic research has a key role in addressing such concerns by developing critical understanding of how VBCs might avoid repeating legitimacy issues with carbon credits and offset markets. Recent research tackling this issue provides a basis for robust crediting foundations, standards and governance, which are intended to strengthen biodiversity credit design, implementation and assessment (Wunder et al. 2025). While there is a growing literature analysing biodiversity credits (Ducros and Steele 2022; Deutz et al. 2020; NatureFinance 2023; BCA 2023, BCA 2024a, BCA 2024b; Wunder et al. 2025) as well as the broader category of biodiversity finance (Bach et al. 2025; Bassen et al. 2024; Maroun and Ecim 2024), few studies explore the motivations and attitudes shaping participation in the nascent market for VBCs. Addressing this gap is significant, given increasing academic interest afforded to nature investments (Löfqvist et al. 2023; Seidl et al. 2024), environmental credits (Medina and Scales 2024; Moxey et al. 2021; Krause and Matzdorf 2019; Koellner et al. 2010), biodiversity accounting and reporting (Ali et al. 2024; Schaltegger et al. 2023; Smith et al. 2024; Treepongkaruna 2024) and biodiversity strategies (Booth et al. 2024; White et al. 2024; Panwar et al. 2023; Krause et al. 2021; de Silva et al. 2019). These studies demonstrate a growing interest in biodiversity in business and strategy literature, but gaps remain. For instance, the debate about VBCs has largely occurred in grey literature (including policy documents, intermediary-specific publications and nongovernmental organisation [NGO] reports). Where academics have analysed biodiversity finance and biodiversity strategies, the emphasis is rarely on biodiversity credits. For example, zu Ermgassen et al. (2025) reveal the status and drivers of biodiversity financing in Europe, while Löfqvist et al. (2023) investigated incentives and barriers for private restoration financing through interviews with asset managers and restoration finance experts. While both studies address opportunities and challenges for private investments in biodiversity financing, they do not specifically focus on biodiversity credits. When biodiversity strategies are discussed (White et al. 2024), credits are seen as an option for achieving nature-positive outcomes. However, we lack insight into the reasons why actors are attracted to biodiversity credits. Such a lack of specificity has implications for business and strategy research as biodiversity loss is becoming more 'frequently mentioned' but remains 'poorly understood and undervalued' (Panwar et al. 2023, 562).

Where academic studies do focus on biodiversity credits the emphasis is upon technical specifications of credit design (Maczik et al. 2024; Rossberg et al. 2024; Ford et al. 2024). Wunder et al.'s recent contribution (2025) reveals how academic analysis can develop critical understanding of the gap between optimistic market projections for biodiversity credits and the current status of biodiversity credit projects. Adopting a Theory of Change approach, the authors develop an 'idealised wish list' specifying critical design features they expect will assist in avoiding a false start and thereby mitigate problems in previous markets for carbon credits and offsetting. However, Wunder et al. (2025) stress the need for further research exploring the 'attitudes and motivations' driving interest in both the demand and supply of biodiversity credits. Such analysis is expected to complement existing studies focusing on the technical aspects of credit design, by elaborating the expectations and hopes underpinning growing interest in biodiversity credits.

We respond to Wunder et al. (2025) in this article by analysing the motivations and attitudes of early market actors, defined as potential buyers (e.g., government bodies, companies, philanthropic entities, individuals) and sellers (e.g., landowners, local groups, NGOs, private project developers, public conservation agencies). Our aim is to complement current studies exploring the technical aspects of biodiversity credit design by focusing upon the meanings shaping early market participation in the nascent market for VBCs. As such, we build upon research emphasising how in nascent markets the construction of new meanings, or a 'web of interpretations,' is vital due to the lack of homologous definitions, standards and evaluative criteria used to compare performance (e.g., rankings) (Rindova and Fombrun 1999; Rindova et al. 2018). By analysing the construction of new meanings is especially we aim to extend critical understanding about how biodiversity credits relate to the general move towards integrating biodiversity into strategy (Panwar et al. 2023; White et al. 2024; Bansal et al. 2025). Furthermore, we also aim to contribute to research exploring nascent nature markets, which are characterised as highly contested due to differing beliefs and values ascribed to nature (Teo 2024). Consequently, in this article we address the research question: *Which motivations and attitudes are driving interest in VBCs?*

To address the above question, we adopt a qualitative research design, which is appropriate for analysing meanings that are shaping participation in the nascent market for VBCs. We undertook 21 semistructured interviews with potential buyers, sellers and intermediaries operating in the United Kingdom (UK). Our findings suggest two ways in which motivations and attitudes are shaping the nascent market for VBCs. Firstly, the *drivers* (economic, environmental, socio-cultural) that are attracting early market actors to VBCs and secondly the *barriers*

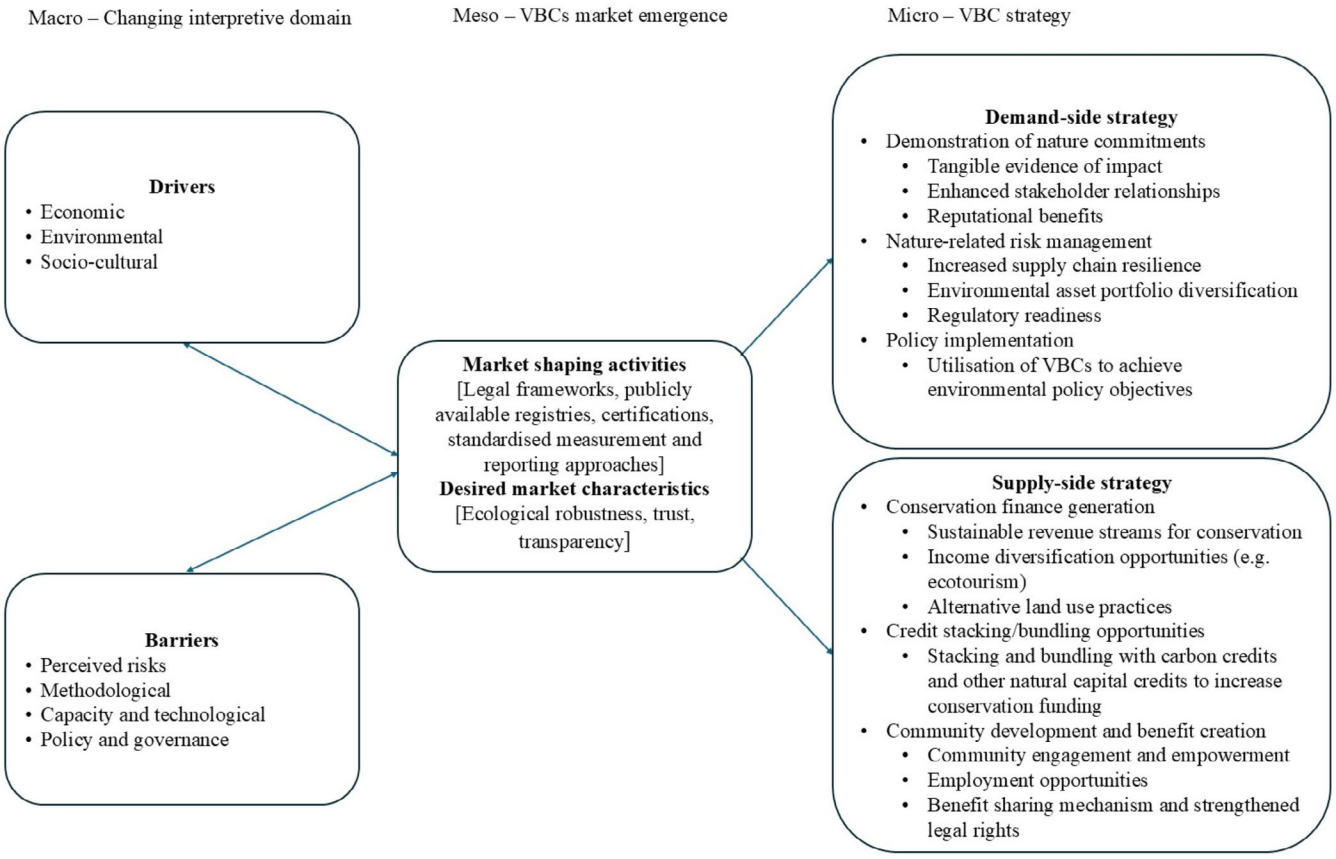

FIGURE 1 | Three interconnected levels informing the nascent market for voluntary biodiversity credits (VBCs).

(financial, reputational, methodological, capacity and policy), which reveal uncertainties and complexities slowing market development. Our findings have theoretical implications when showing how biodiversity credits are part of a changing interpretive domain (Rindova and Fombrun 1999) in which biodiversity is seen as increasingly relevant for strategy or at least is much harder to ignore (Bansal et al. 2025). As such, we contribute a more nuanced understanding of the motivations and attitudes driving interest in VBCs as well as the barriers and risks.

The remainder of the paper is structured as follows. First, we review current literature examining VBCs, noting the lack of research analysing meanings that actors are constructing to shape exchanges in the nascent market for VBCs. Second, we describe the research design and data analysis. Third, we present our findings on the drivers and barriers shaping VBCs. Fourth, we discuss our findings and how they extend current understanding and include a schematic visualising the nascent market for VBCs (see Figure 1). We then conclude our study by discussing the implications, limitations and future research arising from our analysis.

2 | Literature Review

2.1 | Overview of Nature-Based Credits

Nature-based credit mechanisms (e.g., nature-based carbon and biodiversity offsets and biodiversity credits), often shaped by regulatory precedent and the 'polluter pays' principle, are widely recognised as significant financial tools for directing private sector investments towards conservation and restoration efforts (Swinfield et al. 2024). Among these mechanisms, carbon credits are prominent, which involve purchasing emission reductions achieved in one location to offset CO_2 emissions elsewhere (Antonelli et al. 2024). This system allows entities unable or unwilling to directly reduce emissions to lower their total emissions through alternative means (Teo 2024). However, the capacity of carbon credits to deliver genuine emission reductions has long been debated, primarily due to mistrust in calculation methodologies (such as overcrediting) and lack of transparency in implementation (Swinfield et al. 2024; Balmford et al. 2023; West et al. 2020). Consequently, serious doubts persist regarding the actual contribution of these mechanisms to climate change mitigation (Probst et al. 2023). Enhancing the credibility of carbon credits is thus crucial for them to function effectively as a climate change mitigation tool (Balmford et al. 2023).

On the other hand, there is optimism that biodiversity credits will be more effective than carbon credit markets (Antonelli et al. 2024). Drawing lessons from issues observed in carbon markets and avoiding repetition of similar mistakes is essential. However, biodiversity comes with inherent complexities. The most significant difference between biodiversity and carbon credit markets lies in the measurement unit. Carbon markets focus on reducing the inputs to a single process (the greenhouse effect), which operates globally, and the effects of the various greenhouse gases (the inputs) can all be measured in terms of carbon dioxide equivalent—allowing a single measurement unit. In contrast, biodiversity varies hugely from place to place,

in its constitution and also in its value to people, and biodiversity markets serve numerous purposes, from cultural and heritage value to information in genes, ecological resilience and many others. Hence, there is no universal standardised measurement unit for biodiversity, and the straightforward logic of carbon equivalence does not apply to biodiversity trading (Ducros and Steele 2022).

The context-specific nature and methodological complexities of biodiversity measurement complicate attempts to ensure equivalence between biodiversity losses and gains, increasing the risk that biodiversity offsets fail to achieve their intended 'net zero' impact (Swinfield et al. 2024; Ducros and Steele 2022). This has made it necessary to make a clear distinction between biodiversity credits and biodiversity offsets. Wunder et al. (2025) note that biodiversity credits could come to be used as de facto compensation for residual losses not addressed by existing regulation, raising concerns if voluntary credit standards are weaker than those for compliance offsets. This risk becomes even more significant in the light of findings by Trencher et al. (2024), that organisations operating in voluntary carbon markets predominantly source low-quality, cheap carbon offsets. Furthermore, there is a tendency for organisations prioritising compensation as the first choice rather than pursuing more challenging conservation or restoration efforts, thereby justifying business-as-usual operations (Panwar et al. 2023). For all schemes where the use case involves compensation or offsetting, the Biodiversity Credit Alliance (BCA 2024c) recommends that additional detailed principles are required, over and above the High-Level Principles (BCA, 2024c) that it has developed with the World Economic Forum and the International Advisory Panel on Biodiversity Credits (IAPB).

In line with these concerns, IAPB (2024a) has established strict principles for using biodiversity credits as local compensation. In this context, companies can use biodiversity credits for compensation only after thoroughly assessing biodiversity impacts and demonstrating that they have taken all feasible measures to prevent or minimise harm, addressing residual impacts following the mitigation hierarchy in a local-to-local and like-for-like manner (Antonelli et al. 2024). In the light of all the current debates and uncertainties surrounding the use of VBCs, market research shows that none of the limited number of transactions conducted so far has been used for offsetting purposes. Buyers have so far refrained from making any claims beyond contributions (Bloom Labs 2025).

Another important development is the distinction between voluntary and compliance markets, which are two categories of biodiversity credits. For instance, biodiversity net gain (BNG) is a recently implemented biodiversity compliance market in England. The Environment Act 2021 mandates that most new developments in England must demonstrate the provision of at least 10% net gain of biodiversity for a minimum of 30 years, to obtain planning permission (Environment Act 2021). While BNG holds great potential for the creation and management of many habitats in England, the supporting methodology is criticised in terms of how accurately it captures important dimensions of biodiversity (e.g., Duffus et al. 2024). Moreover, there are concerns that BNG, as currently implemented, will provide minimal benefits for biodiversity, and that resource and governance deficiencies may undermine the policy's effectiveness (zu Ermgassen et al. 2021; Rampling et al. 2024). As such, the markets for voluntary and compliance biodiversity credits remain nascent with much debate about experimental and often untested credit methodologies.

2.2 | Factors Shaping the Voluntary Biodiversity Credits Market

Beginning in 2022, our research has traced the factors shaping the nascent market for VBCs. During this period powerful actors, such as the WEF (2023) and the United Nations (UN)-backed BCA (2023), have published reports promoting biodiversity credits as a means for advancing organisational missions, addressing nature dependencies, achieving market differentiation and reputation uplift, and as relevant for addressing emerging regulatory pressures and potential financial penalties. Closely related are reports from influential strategy consultancies (McKinsey and Co. 2022) and specialist biodiversity consultancies (Pollination 2023) elaborating the threats that nature-related risks pose to business. Also related are efforts to integrate biodiversity into reporting and disclosure policies (Taskforce on Nature-related Financial Disclosures [TNFD] 2023). Finally, this period has seen growing awareness in policy as to the interdependencies between economy, society and biodiversity (Dasgupta 2021). As such, biodiversity credits have been framed as a mechanism that is expected to assist in raising private investment needed to achieve global biodiversity targets (e.g., COP 15 Global Biodiversity Framework) and regional policy objectives (e.g., European Union [EU] Biodiversity Strategy for 2030, Corporate Sustainability Reporting Directive [CSRD]). These factors are legitimising VBCs as a strategic option for organisations looking to improve biodiversity (WEF 2023; Ducros and Steele 2022).

During this period, academic research has also begun to recognise the growing significance of biodiversity. For example, de Silva et al. (2019) observed that organisations are increasingly considering 'no net loss' or 'net positive impact' targets. White et al. (2024) note that reporting biodiversity, including through the use of biodiversity credits, is one way to evidence 'nature-positive' commitments. Research exploring the broader relationship between biodiversity and finance shows that biodiversity can expose organisations to shareholder litigation (Treepongkaruna 2024) as well as creating opportunities to attract investors committed to long-term biodiversity improvement (Ali et al. 2024). There is also growing literature exploring how biodiversity is being integrated into reporting and disclosure activities (Schaltegger et al. 2023; Maroun and Ecim 2024), financial decision making (Nedopil 2023), corporate narratives (Atkins et al. 2023), strategy (Panwar et al. 2023) and when adopting biodiversity policies (Carvalho et al. 2023). Recent studies extend such insights by showing how biodiversity management affects firm performance (Bach et al. 2025; Bassen et al. 2024).

However, despite the growing literature exploring biodiversity and business few studies focus upon biodiversity credits. Instead, much of the debate is in grey literature, including

policy documents (e.g., WEF 2022, 2023; BCA 2023, 2024a, 2024b; IAPB 2024a, 2024b, 2024c; British Standards Institution [BSI] 2024), intermediary-specific publications (e.g., methodologies by Wallacea Trust 2023; Plan Vivo 2023), reports from nongovernmental organisations (NGOs) (e.g., World Wide Fund for Nature [WWF] 2024) and contributions from other market actors (e.g., Pollination 2023; Mirova 2024). When academic studies directly address biodiversity credits the emphasis is upon the technical aspects of credit design (Wunder et al. 2025). Consequently, Wunder et al. (2025) call for research analysing the motivations and attitudes that are driving interest in biodiversity credits. In this article we respond to this gap by exploring the meanings shaping market participation in the nascent market for VBCs. Consequently, in this article we address the research question: *Which motivations and attitudes are driving interest in VBCs?*

3 | Methodology

3.1 | Research Design

A qualitative research design was deemed appropriate given that our research objectives are exploratory (Alharahsheh and Pius 2020) and focus on the meanings attracting early market actors to participate in the nascent market for VBCs. As such, an interpretive approach was used to gather accounts from early market actors. This is appropriate when a phenomenon is poorly understood, so as to facilitate initial understandings and address knowledge gaps in the field (Burns et al. 2022). Such an exploratory approach is appropriate for analysing how early market actors construct new meanings in nascent markets where there is typically a lack of established standards for evaluation (Rindova et al. 2018; Lounsbury and Glynn 2001). Another relevant aspect of interpretive methodologies is the capacity to harness reflexivity of research participants and researchers (Alvesson and Sköldberg 2017). To generate reflexivity, we combined verbal and visual interactions intended to elicit the interpretations that participants were constructing to engage in the nascent market for VBCs. As we discuss in the following section, participants' reflexivity was synthesised with the research team's understanding about the meanings informing the nascent market for VBCs, thereby connecting first-hand experience with secondary interpretations derived from readings of grey and academic literature about biodiversity credits.

3.2 | Data Collection and Analysis

Our primary method of data collection was interviews, which are widely used to gather accounts based upon others' perspectives (Patton 2014). Interviewees were selected to gather a range of different perspectives from early market actors in the UK. This included potential sellers of VBCs, potential buyers and intermediaries. The semistructured interview schedule was developed from themes emerging in reviewing academic and grey literature on carbon credits and biodiversity credits (e.g., BCA 2023; Balmford et al. 2023; Ducros and Steele 2022; Moxey et al. 2021; West et al. 2020; St-Laurent et al. 2017; Torabi and Bekessy 2015). The ordering of questions was adapted for different interviewees (e.g., buyer/seller) (Adams 2015), but all participants were asked questions about: (i) motivations for investing in biodiversity; (ii) what makes VBCs attractive; (iii) general understanding of VBCs; (iv) drivers for engaging in the nascent market for VBCs; and (v) barriers preventing the market for VBCs. See Appendix A for the interview schedules. To facilitate discussion and encourage participation, the graphic illustrated in Figure 2 was used to probe participants' understanding of the nascent market for VBCs. This builds upon the use of visual tools in qualitative research, which enable communication, stimulate idea exchange, enhance data richness and strengthen rapport between researchers and participants (Glegg 2019). Given the emerging nature of the VBC market and the varying levels of participant knowledge, the visual supported participants' reflexivity particularly when discussing perceived barriers to implementation.

In total, 21 semistructured in-depth interviews were conducted with 23 participants. This included two interviews each with two participants from the same organisation. Participants' roles within their organisations included senior leadership positions (e.g., CEOs, directors), technical specialists (in ecology, biodiversity and nature-based solutions), environmental consultants, managers (in business development, partnerships, asset management and sustainability) and trustees. Several participants held specialised positions focused on nature finance and biodiversity research. The profiles of the interviewees are summarised in Table 1. We stopped at 21 interviews after reaching theoretical saturation with respect to addressing the research question. The interviewees were identified using existing networks (e.g., Scottish Nature Finance Pioneers), the research team's professional networks, from attendee lists of relevant

FIGURE 2 | Potential steps in a voluntary biodiversity credit (VBC) implementation (adapted from NatureFinance and Pollination 2023).

TABLE 1 | The profiles of the interviewees.

Participant ID	Participant's category	Job title
Participant 1 (P1)	Private landowner/manager	Conservation director
P2	Nature restoration company	Senior manager
P3	Conservation charity	Biodiversity specialist
P4	Conservation charity	Project consultant
P5	Private landowner/manager	Forestry consultant
P6	Conservation charity	Business development manager
P7	Conservation charity	Trustee
P8	Sustainable asset management company	Asset manager
P9	Financial institution (bank)	Senior manager
P10	Nature restoration company	Ecology lead
P11	Nature restoration company	Partnerships manager
P12	Private landowner/manager	Agroecological consultant
P13	Natural capital brokerage company	CEO
P14	Conservation charity	Conservation officer
P15_1	Nature-technology company	Senior executive
P15_2	Nature-technology company	Business development associate
P16	Nature-technology company	Nature finance lead
P17_1	Insurance company	Sustainability manager
P17_2	Insurance company	Carbon specialist
P18	Nature restoration company	Research scientist
P19	Regulator/governmental organisation	Coordinator
P20	Sustainable development consultancy	Director
P21	Coastal partnership organisation	Partnership manager

Note: P1–P21 denote anonymised participant identifiers. Where two participants from the same organisation were interviewed jointly, individual responses are distinguished by numerical suffixes (e.g., P15_1 and P15_2; P17_1 and P17_2).

events and, where necessary, by snowball sampling. Snowball sampling is a common sampling method in qualitative research where initial participants (seeds) meeting the research criteria recommend other potential suitable participants, who in turn refer additional contacts, thus creating an expanding network of respondents (Parker et al. 2019). Because a well-defined market for VBCs has yet to emerge, the sampling strategies that we used contributed to identifying organisations that are aware of and potentially interested in VBCs. Participants were contacted either through these networks or directly via email. The interviews were conducted online via MS Teams between October 2023 and May 2024, with one interview conducted face-to-face. The interviews were undertaken by the research team and lasted an average of 1 h. Following the ethical considerations outlined by Fontana and Frey (2005), informed consent was obtained from all interviewees, and interviewees were assured of confidentiality and explained the purposes and use of their responses. To ensure the confidentiality of the information provided during the interviews, the names of the interviewees and all information that would reveal the identities of the individuals and organisations were anonymised. The interviews were recorded and transcribed to support the data analysis process.

In addition, to triangulate the interview data, an extensive review of secondary sources pertaining to each organisation was conducted. These secondary sources encompass a wide range of materials, including sustainability and biodiversity reports, press articles and information available on organisational websites. This secondary data was used to gain a more comprehensive understanding of the organisations' relationships with biodiversity (e.g., biodiversity projects and policies) and their potential roles in the market (as buyers, sellers or intermediaries). This triangulation process enhances the reliability and accuracy of the study findings, as multiple sources of information are used (Yin 2018).

Data analysis was carried out using an inductive approach to systematically identify patterns and themes of meaning in the data and provide insight into them (Braun and Clarke 2012).

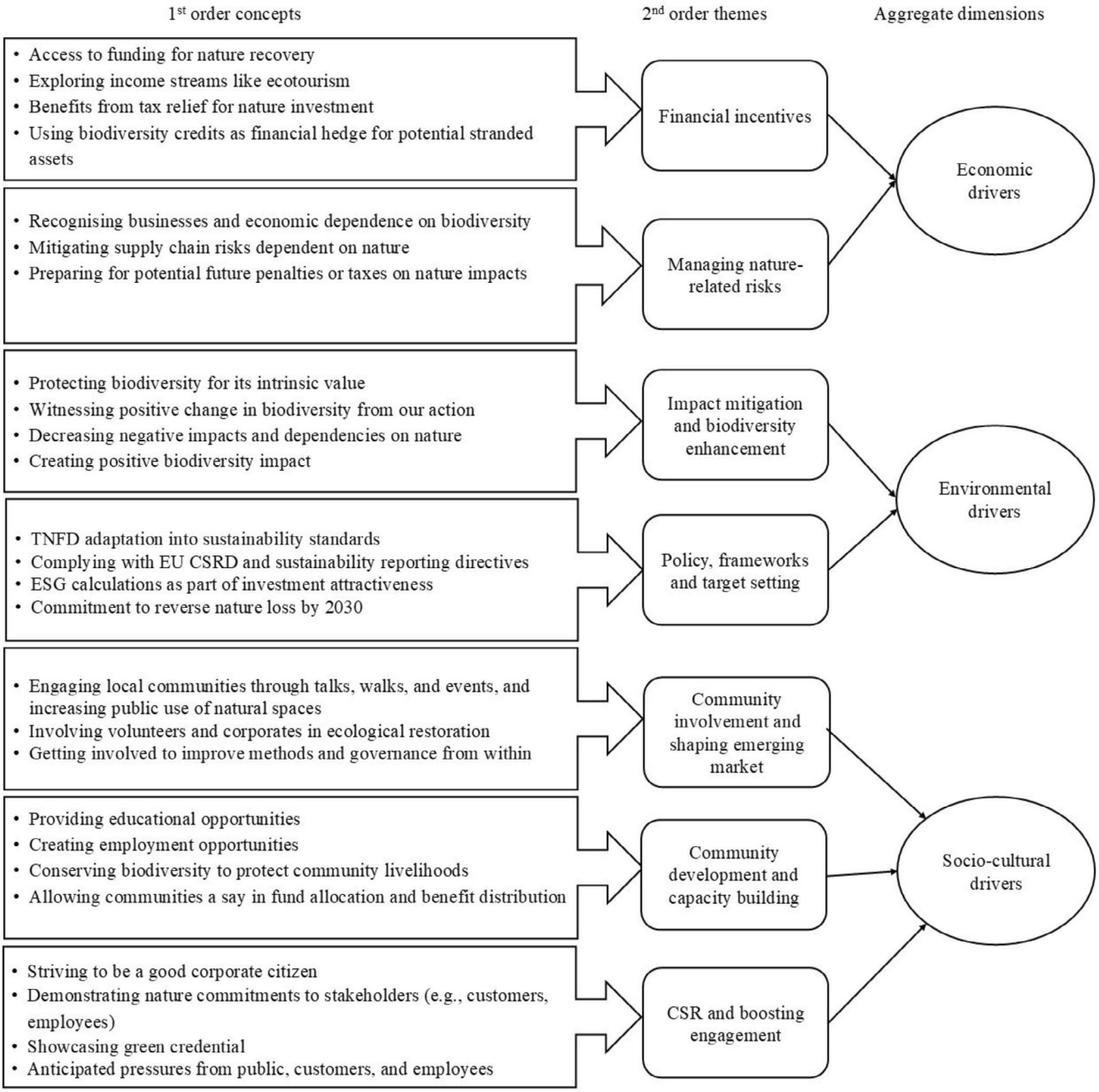

FIGURE 3 | Analysis of motivations and attitudes driving interest in voluntary biodiversity credits (VBCs).

Thematic analysis, an accessible and theoretically flexible interpretive approach to qualitative data analysis, was adopted to initially identify patterns or themes in the data set relevant to the research questions (Byrne 2022). The initial results of the thematic analysis were discussed among the co-authors and presented to wider audiences, for example, in 'all hands' meetings including researchers from other work packages (natural scientists) in our project, and the board of advisors. To strengthen the rigour in the coding, we adopted the three-stage approach of Gioia et al. (2013). In the first stage, the interview accounts were coded using the language of the interviewees. In the second stage, the initial codes were examined for similarities and differences, resulting in a more refined set of theory-centric themes and concepts. At this stage, we also cross-referenced the thematic analysis, noting agreement and differences. Finally, the themes were grouped into overarching aggregate dimensions (Gioia et al. 2013), and the data structures are illustrated in the Figures 3 and 4. The revised data structures were then presented at another internal 'all hands' meeting and at an interim programme review meeting. This provided an opportunity to share the data structures and receive further feedback. The analysis was undertaken using NVivo 14 software (Lumivero 2023) and took around 11 months to complete. As such, the analytical process was highly recursive, which enabled the researchers to harness their reflexivity towards the coding structures. Presentations to external audiences, which included actors who were heavily invested in VBCs, provided a further level of interpretation that was folded back into the analytical process.

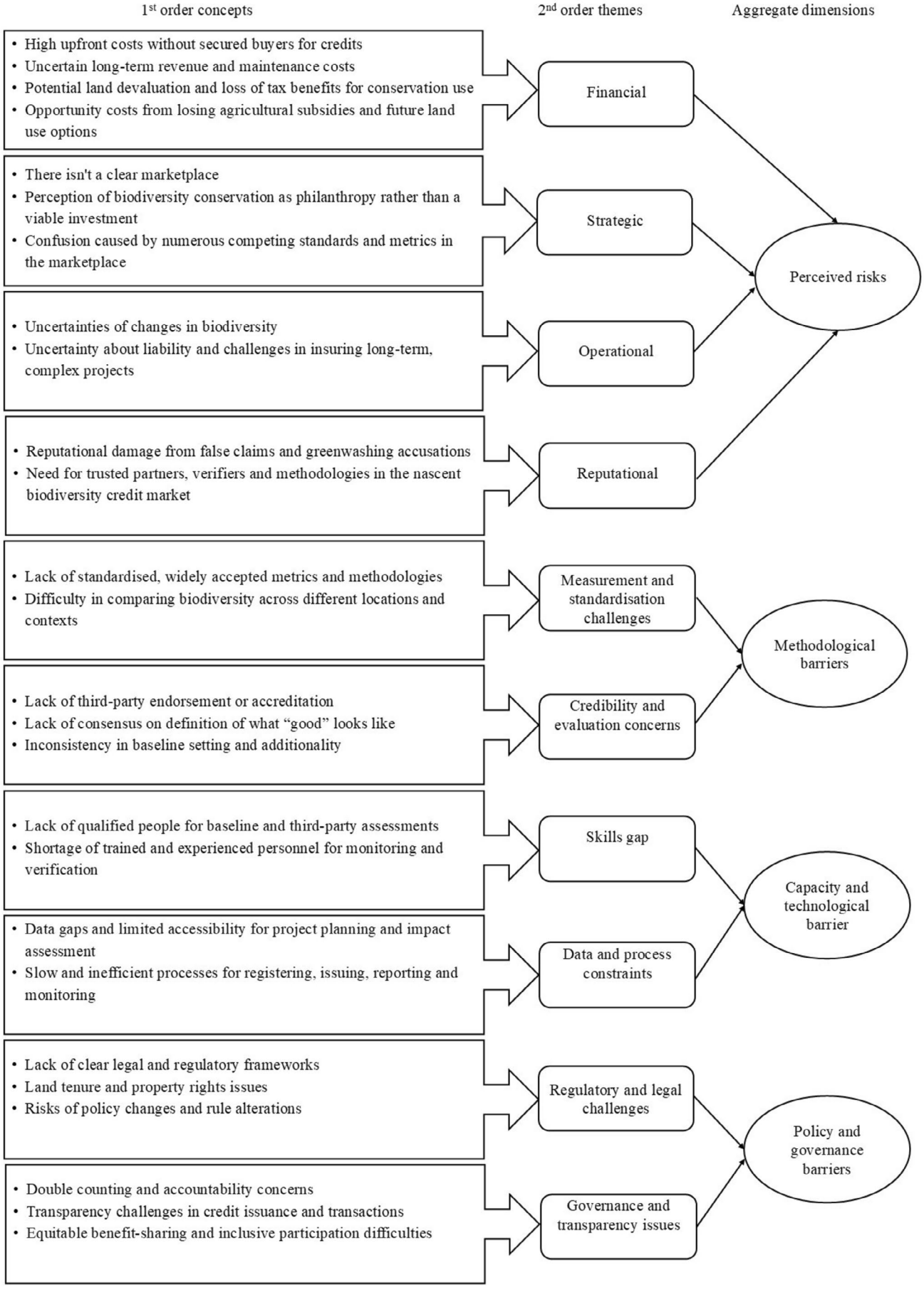

FIGURE 4 | Analysis of barriers expected to slow market development.

4 | Results

4.1 | Drivers for VBCs

Our analysis of motivations and attitudes reveals three drivers that are fuelling interest in VBCs for early market actors: economic, environmental and socio-cultural (see Figure 3). Economic drivers are associated with financial incentives and mitigating risks, environmental drivers stem from intrinsic and regulatory motivations, and socio-cultural drivers highlight the broader societal attitudes regarding anticipated benefits of biodiversity conservation. This section sheds light on each of these drivers in turn.

4.1.1 | Economic Drivers

Several participants were motivated by the economic benefits and opportunities associated with VBCs. From the supply-side perspective, as one landowner put it, 'our starting point is we would like to manage the land in an economically sustainable way, and we are very open to doing that through habitat creation and enrichment as long as it makes financial sense' (Private landowner/manager, P5). VBCs were described as providing a sustainable financing mechanism for conservation and restoration interventions, supporting long-term conservation activities and creating funds to cover various costs such as land acquisition, implementation of land-use changes, monitoring and reporting. Selling VBCs also offered income diversification opportunities, such as for ecotourism, making conservation economically viable for landowners and local communities. As a respondent from a conservation charity said, 'We think biodiversity credits could (...) provide long-term sustainable finance, and that will allow people on the ground and conservation projects to instead of running grant by grant to have a longer-term vision of biodiversity conservation' (Conservation charity, P3).

From the demand-side perspective, seeing biodiversity credits as a tradeable asset places value and generates obligations to restore nature, valuing critical but previously undervalued natural resources more highly: 'At the end of the day, we need biodiversity. It's essential to support our businesses and if we don't have nature then we don't have supply chains, we don't have businesses, we don't have a functioning economy, so somehow, we have to make sure that we are restoring nature because otherwise we're in big trouble, and effectively the credits are a way to give people an obligation and therefore direct funding towards what needs to take place' (Insurance company, P17).

Another motivation was the growing awareness of the need to manage nature-related risks. Some companies face increasing costs as their traditional assets may cause environmental damage or become subject to environmental taxation or future regulatory risks, potentially including penalties. Financial institutions saw VBCs as investments to support organisations in mitigating nature-related risks and reducing future compliance costs: 'So, if [organisations] start to buy into projects that have a positive impact maybe that increases in value as their stranded assets decrease in value' (Financial institution (Bank), P9). Others emphasised how VBCs could help communicate commitment to addressing biodiversity dependencies and impacts to shareholders and other stakeholders as accounting standards develop, 'whereby people are actually having to track their impact on nature' (Sustainable asset management company, P8).

4.1.2 | Environmental Drivers

Our analysis suggests that landowners and managers are open to finding new ways to adapt land use practices to address the 'triple planetary crisis,' that is, the interlinked challenges of climate change, biodiversity loss and pollution (United Nations Climate Change 2022). As such, interest in VBCs connects with wider motivations to tackle biodiversity loss through effective conservation measures. Interviewees mentioned several environmental motivations, such as being aware of the intrinsic value of nature, witnessing the positive change resulting from actions and practices aimed at improving biodiversity, feeling a sense of responsibility towards nature and addressing the biodiversity crisis: 'We're very conscious and well aware of the challenges that nature is facing, particularly in the UK, with declines in biodiversity and the impact of climate change. We have to do something about this' (Conservation charity, P6).

Environmental motivations also extended beyond intrinsic support for biodiversity to encompass regulatory and policy change. VBCs were framed as part of 'a big and necessary movement towards companies becoming nature positive' (Nature-technology company, P16), alongside net zero commitments, aligning with environmental, social and governance (ESG) strategies and meeting sustainability reporting requirements. New reporting standards and guidelines, such as the EU CSRD, are shaping expectations that it is becoming necessary to assess and report relationships with biodiversity more comprehensively. Many organisations we interviewed are interested in VBCs as part of a wider knowledge challenge regarding environmental reporting. Some recognised that 'biodiversity is the piece they haven't thought about before across their value chains' (Sustainable development consultancy, P20). Biodiversity credits offer a means to report biodiversity conservation measures and demonstrate commitment to biodiversity conservation in a clear and standardised manner.

4.1.3 | Socio-Cultural Drivers

A desire to create positive social impacts beyond environmental protection was also a significant motivation. In particular, participants mentioned how community involvement, capacity building and engagement could be achieved through VBCs so as to enhance 'nature connectedness,' well-being and a sense of responsibility for nature and supporting people with 'making good decisions in their own lives' (Private landowner/manager, P12). Consequently, VBCs were linked with broader societal attitudes regarding human well-being outcomes through conserving nature.

A related socio-cultural driver was the expectation that VBCs could generate tangible impacts on local development and livelihoods. This includes employability and capacity development in local communities: 'Biodiversity is important not only because it's intrinsically valuable but also because communities depend on it for their livelihoods (...) By conserving

the vegetation, we are also protecting the livelihoods of these communities (…) We expect to increase capacity building, not only related to vegetation management but also other activities that could transfer to other industries, like financial and project management, and those types of things that are in high demand in the area. We hope this will increase the employability of the communities that are nearby, beyond the management of biodiversity' (Conservation charity, P3). VBCs were seen as a means to increase community participation in decision-making regarding how the benefits transferred to the community will be utilised: 'If they're done properly, the communities have a say on how the money will be used and the benefits they get. So, then they can develop their own economic activities but still maintaining conservation' (Nature restoration company, P18).

From a buyer perspective, VBCs were viewed as a way to demonstrate commitment to biodiversity conservation, for instance, as part of CSR strategies and stakeholder engagement. The interviewees emphasised that as awareness of biodiversity loss grows it is more likely the impact of business activity upon nature will be subject to increased scrutiny. An insurance company noticed that shareholders, peers and stakeholders have begun to recognise the role and importance of nature and 'start to ask questions around what a business is doing and how it impacts on nature and biodiversity' (Insurance company, P17). Early adoption of VBCs was anticipated to generate reputational benefits and increase employee and customer loyalty: '(…) we've had discussions about [biodiversity credits] with customers so far and about why they should be potentially buying these (…) One has been around companies that have a self-image as a leader, as a thought leader. They're willing to take the first step. They've got employees that want to see them as a thought leader. So, the employee engagement angle is almost as important, if not more important than the customer engagement angle' (Financial institution (Bank), P9).

4.2 | Barriers for VBCs

Our analysis of also revealed barriers participants expected would slow the market for VBCs. While these are often interrelated and overlapping, we organised them into four aggregate dimensions: perceived risks, methodological barriers, capacity and technological barriers, as well as policy and governance barriers (see Figure 4).

4.2.1 | Perceived Risks

Our findings suggest there are several risks influencing the supply and demand sides. We categorise these into financial, strategic, operational and reputational risks, each of which we outline below.

Financial risks were seen as a key consideration for the implementation of VBC projects. For instance, a key obstacle is high costs associated with project development. These include legal consultancy, training, adoption of new technologies, baseline assessments and long-term maintenance. There were also concerns about high costs related to validation, monitoring and reporting. Participants noted difficulties in accessing start-up capital and high transaction costs as a significant barrier, especially for small-scale projects without a committed buyer: 'Obviously, it'll cost a lot of money. If you haven't secured a buyer yet, who's going to pay for your £500,000 fence? Who's going to pay for your digger that costs £300,000 to restore your river? All these amazing things you need to do [how can you do them] if you can't advance-sell any credits?' (Nature restoration company, P2).

The opportunity cost of land committed to biodiversity credits was another financial risk. One landowner explained that under current tax and agricultural incentive systems, 'land value is based on its income, which is invariably from the production of food, forestry, or whatever it might be,' which means that 'until this market takes place, putting land into nature also devalues the land' (Private landowner/manager, P1). Or expressed more sharply by a conservation charity (P14): 'So, if a farmer decided to give up half his farm to nature, he basically loses half his agricultural support.'

The nascent state of the market for VBCs was also seen as creating a high degree of uncertainty for both suppliers and buyers. Specifically, competing standards and new untested methodologies for VBCs were often mentioned. For example, while 'a lot of corporate investors want to see quick results' they are 'told they will not see a benefit of that for the next 5 or 10 years' making it difficult to justify the investment to shareholders (Conservation charity, P6). The inherently long-term nature of seeing the impact of investments in biodiversity projects presents an additional strategic risk, limiting the demand for VBCs due to challenges in internally justifying these expenditures in companies. The presence of competing metrics, methodologies and standards for VBCs also adds uncertainty: 'Whether it's biodiversity credits, tokens (…) there is too much out there in the marketplace at the moment. I think it's too confusing' (Nature restoration company, P10). A lack of data that could be used to demonstrate return on investment also affected interest in VBCs. A representative from an asset management company noted how 'I think it's seen broadly as like philanthropy rather than selling them on to, like, a corporate entity' (Sustainable asset management company, P8).

Operational risks were also raised as a risk, especially with regards to implementation. Changes in biodiversity are uncertain and complex. Natural fluctuations in populations, force majeure events and climate change factors, for instance, can add risks and threaten projected outcomes in projects. Extra uncertainty arose around a lack of clarity regarding liability and insurance in case biodiversity credit projects go wrong. As one participant stated, 'After two wet winters, I can tell you the farmers would be really nervous about spending money getting towards those ends [project development] without some sort of assurance' (Private landowner/manager, P12).

Another concern was the potential for reputational damage for companies considering entering the VBC market. Reputational risks, particularly related to credibility and accusations of greenwashing, were typically discussed as a reason for the current lack of demand. As an asset management

company explained, 'Private capital is going to have to think "do I believe what they're claiming in order to buy this asset?"' They were sceptical that the credits were credible at the moment, leading to 'an awful lot of implicit risk in buying biodiversity credits currently' (Sustainable asset management company, P8). Beyond credibility concerns, public perception challenges and a common societal preference for managed landscapes over wilder, more biodiverse environments, were mentioned as adding to reputational risks. For instance, a private landowner was concerned that allowing nature to be wilder and less managed while 'more rich and diverse' is also 'less attractive to society' because people have become used to seeing more managed landscapes. At its worst, hesitancy from these reputational risks can lead to inaction because 'the fear of doing something and getting it wrong is bigger than the fear of doing nothing' (Nature-technology company, P16). These quotes illustrate how, at least for some participants, the attractive hope of VBCs is tempered by concerns about making claims that cannot easily be substantiated, thereby indicating awareness of the possible risks that VBCs expose organisations to future washing.

4.2.2 | Methodological Barriers

A key barrier for participants is the methodological challenges, particularly related to standardisation and measurement. Our findings suggest that the lack of standardised, widely accepted methodologies for measuring and assessing biodiversity outcomes is a significant barrier to the adoption of these credits. As one private landowner stated, 'There are different interpretations of what the design should be, (...) everyone has a difference of opinion' (Private landowner/manager, P1). This challenge is inseparable from biodiversity's location-specific structure, making standardisation particularly difficult: 'Biodiversity is so location-specific that it makes it really complicated' (Insurance company, P17). Such methodological complexity prompted another participant to comment that 'it will be quite hard to measure a biodiversity credit' (Sustainable asset management company, P8).

Verification emerged as another critical methodological barrier. Participants emphasised the need for reliable third-party verification to build market trust, particularly given the complexity of accurately measuring biodiversity improvements over time. As one financial institution representative noted, 'The next step which I would see as a barrier is who does the verification and why do we trust them. (...) if the people who are auditing and verifying the work are unknown and untrusted, it's very difficult to get a buyer to trust the credit that's created at the other end' (Financial institution (Bank), P9).

Buyers stated that credits must be evidence-based, transparent, accountable and of high integrity. However, investors may lack the necessary expertise to compare and evaluate biodiversity credits effectively. This knowledge gap creates further uncertainty about what constitutes good or best practice: 'It's too early for many of our customers and therefore for us to put capital to work because we don't know what good looks like, and we don't know precisely what it is we're measuring and trying to achieve' (Financial institution (Bank), P9).

4.2.3 | Capacity and Technological Barriers

Our analysis suggests that there is concern regarding the available skills and data accessibility needed to implement and monitor VBCs. These barriers were both seen as reducing the attractiveness of designing, verifying and monitoring conservation projects. For example, a shortage of qualified personnel, particularly ecological experts, was a significant barrier likely to impact upon crucial project stages including baseline assessments and verification. As one participant emphasised, 'I think we've got a massive issue around skills. I don't think we've got enough people to do the assessment on the ground, whether that be the baseline assessments or the third-party validation' (Sustainable development consultancy, P20). This situation can lead to slow and inefficient project development, registration and verification processes.

Technology issues relating to data accessibility also emerged as a significant barrier. A sustainable development consultancy representative noted the need for 'a global data platform that's open for people to use,' because biodiversity data need to be 'easy to access for everybody' since biodiversity enhancement is something that 'anybody with a piece of land needs to be able to think about, not just those that can afford to pay an ecologist.' Moreover, participants often emphasised the importance of providing publicly available registries to ensure market transparency and prevent issues such as double counting and fraud: 'I would be much more comfortable if we had a national register or a global register better still, and I would be much more comfortable if that was geographically specific' (Sustainable development consultancy, P20).

Interviewees also pointed out that many businesses lack systematic approaches to collecting and evaluating biodiversity data, hampering their ability to effectively assess dependencies and impacts. An insurance company representative noted, 'We're just going through that process on a biodiversity assessment and using data that's out there, using internal data that is very patchy and not good enough. We don't collect enough biodiversity, ecology, [or] any kind of data on our investments, on our insurance underwriting side' (Insurance company, P17). Additionally, a landowner expressed the lack of systematic evaluation and recording of past environmental initiatives impacts as follows: 'The frustration is we've had investment into the environment for 30 years in England and no one ever recorded what we did (...) we don't really know or understand what we achieved' (Private landowner/manager, P1).

4.2.4 | Policy and Governance Barriers

Our interviews revealed that a lack of policy and governance is creating uncertainty in VBC markets, affecting both supply and demand dynamics. These barriers stem from regulatory and political uncertainties, as well as concerns about transparency and accountability.

The absence of clear legal and regulatory frameworks for VBC markets has been identified as a fundamental challenge. This regulatory uncertainty creates hesitation among potential market participants: 'I think that's essentially one of the biggest

issues, that there just aren't stringent enough laws around what you can do and can't do, and then what your responsibilities are legally' (Sustainable asset management company, P8).

During the interviews, land use rights and long-term commitments were identified as another significant challenge. The extended timeframes required for biodiversity credit projects can create resistance among landowners. A conservation charity representative stated, 'Many people who want to buy nature want a 30-year agreement that it's still going to be there and maintained. To many landowners, that's almost like selling the land' (Conservation charity, P14).

Political changes were also seen as impacting upon long-term conservation initiatives. In particular, the short-term nature of political decision-making based on political cycles was seen as conflicting with long-term commitments to biodiversity conservation. A landowner stated, 'Trying to get any government to implement something that is long term—longer than a political cycle—is quite a challenge' (Private landowner/manager, P1). Similarly, an insurance company representative noted, 'I think that's the challenge that you're always going to have with something that is so slow: that everything can change in terms of what you're allowed to do and what it even means at the end of the day' (Insurance company, P17).

Transparency regarding the outputs, methodologies and transactions of VBC projects, risks of double counting or other accountability concerns was identified as another significant barrier. Negative experiences with the carbon credit market and the lessons learned from them seem to have increased the importance that market actors place on transparency throughout the process (e.g., measuring, validation, issuance and transaction): 'I think it's going to take a little bit of time to get off the ground about biodiversity credit market, simply because I think a lot of people have been stung by the voluntary carbon market and that they're definitely now more cautious. People want to see a lot more steps of verification, validation, ...' (Nature-technology company, P16).

5 | Discussion

To structure the discussion, we use Figure 1 to illustrate three interconnected analytical levels, as follows. The term 'macro-level' (left side of Figure 1) refers to societal-level motivations and attitudes our analysis suggests are driving interest in VBCs. We interpret these as indicative of a changing interpretive domain, in which biodiversity is becoming more relevant in business strategy. The term 'meso-level' refers to market emergence or the market shaping activities that are emerging to address barriers to developing a viable market for VBCs and create desired market characteristics. Finally, 'micro-level' (right side of Figure 1) refers to how organisational actors, on both the demand and supply side, are evaluating VBCs as a means to achieve strategic objectives. While Figure 1 makes the distinction between macro, meso and micro levels a key finding from our study is how these levels are interconnected into a web of interpretations (Rindova and Fombrun 1999). We now discuss each 'level' in turn to show how our research extends current understanding about the attitudes and motivations that are shaping the nascent market for VBCs.

At a macro-level, our findings suggest growing interest in VBCs is driven by a mixture of economic and environmental motivations, as well as changing socio-cultural attitudes. Economically, VBCs are viewed as a means to finance conservation activities and as a source of new opportunities (e.g., income diversification, employment, etc.). Closely related is the expectation that VBCs will provide an economically viable option for mitigating and evidencing nature-related risks. Environmentally, VBCs are seen as a key mechanism for addressing biodiversity loss, thereby aligning with an emerging institutional architecture, which integrates environmental reporting. Socio-culturally, VBCs are congruent with the expectation that organisations should create new forms of value for communities, specifically by improving natural environments through tangible local developments. These findings are suggestive of how the attractiveness of VBCs is connecting to changing values and beliefs regarding biodiversity loss and the need for novel mechanisms, which are expected to reverse historical trends. However, at the same time, our findings show there is a growing awareness of the risks associated with novel market-based mechanisms, such as biodiversity credits. This tension is perhaps reflective of a lack of consensus regarding how biodiversity should be addressed in business (Panwar et al. 2023; Antonelli et al. 2024). While nascent markets tend to be characterised by uncertainty (Townsend et al. 2018), our findings suggest that at a macro-level, the nascent market for VBCs faces additional institutional complexities that are specific to nature-based markets (Teo 2024). As such, our findings reveal that optimistic projections for the biodiversity credits market (Wunder et al. 2025) and interventions from powerful actors (e.g., national governments, EU, WEF, UN) are contributing to legitimating VBCs.

Our analysis suggests that at a macro level the message from scientific research showing that biodiversity is one of the multiple planetary boundaries that have already been breached (Richardson et al. 2023; Rockström et al. 2023) is beginning to be taken up in business decision making (Bansal et al. 2025). This may help explain why there is growing interest that biodiversity credits can provide a viable mechanism for tackling biodiversity loss. As such, our findings show how societal level meanings relating to biodiversity loss are attracting early market actors through what we label as drivers. However, our findings also show that there is considerable work required to reduce uncertainty or what we label as barriers that are hindering market development. As such, we conclude that at a macro level there is growing interest in VBCs but currently low cognitive comprehensibility (Suchman 1995). We attribute this to a lack of clarity regarding what 'best practice' looks like with VBCs. A key development during our study was the emergence of initiatives intended to increase cognitive comprehensibility, which we now discuss as meso-level market shaping activities, which aim to provide definitions of best practices.

At a meso-level, our findings suggest there is a need for market shaping activities. We begin to see such activities in initiatives including the UNDP's Biodiversity Credits Alliance and the UK-French Governments' International Advisory Panel on Biodiversity Credits. These initiatives act as hubs, which coordinate information exchanges that are expected to support the market for VBCs. A key role of such coordinated market shaping

is addressing the complexity of measuring and managing biodiversity. This is significant given there was considerable consensus among our interview participants that a lack of standardised methodology is preventing take-up of VBCs as it is 'unclear what good looks like.' This finding aligns with zu Ermgassen et al. (2025), who examined the challenges in scaling private investment in biodiversity. Carbon and biodiversity offset markets have demonstrated how high methodological flexibility can be exploited for opportunistic overcrediting strategies. Our findings are also congruent with studies showing that agreed-on biodiversity credit methodologies are needed to develop trust in high-integrity standards (Wunder et al. 2025). Indeed, academic research and new intermediary start-ups linked to evaluating biodiversity credit methodologies are likely to play a critical role in meso-level market shaping. This includes identifying desired characteristics of VBCs, as illustrated by Wunder et al. (2025), and new ventures capable of translating ecology expertise into actions that support best practice in VBCs. There is much scope for future research exploring the effectiveness of meso-level activities and intermediary actors in challenges of uncertainty and complexity that are currently hindering market activity.

Developments occurring towards the end of our data collection, especially those leading up to COP16, suggest that meso-level interactions are beginning to coalesce. These go beyond the calls for greater transparency that our interviewees emphasised by providing recommendations specifying proto-solutions to challenges such as the need for a 'single unit' or 'single metric' that are appropriate for all contexts and account for ecosystem uniqueness (BSI 2024; IAPB 2024a; Mirova 2024). Instead, meso-level actors are constructing alternative meanings, such as high-level principles intended to design integrity into VBCs without the need for a single measure (IAPB 2024c). Such debates are informing trade-offs between ecological robustness and market efficiency. As such, there is scope for future studies to explore how meso-level actors are managing tensions and which market characteristics actors see as desirable (Pontikes and Rindova 2020). One interesting possibility is to explore how interactions between NGOs, such as those involved in defining methodological standards, private and public sector actors, are informing how organisations narrate biodiversity (Atkins et al. 2023) or perhaps see VBCs as a risk factor that may trigger 'greenwashing' accusations (Zu Ermgassen et al. 2025). Another possible line of enquiry is to integrate a temporal lens to explore how meso-level market shaping is mitigating fears that VBCs might be a conservation fad (Wunder et al. 2025) or open to future washing (Montgomery et al. 2024).

Last, our analysis suggests that at a micro-level, VBCs are beginning to be seen as a strategic option for achieving organisation specific objectives in relation to biodiversity. Buying VBCs demonstrates a tangible commitment to nature targets, potentially enhancing a buyer's reputation and stakeholder relationships (WEF 2023; BCA 2023), and providing an alternative to traditional philanthropic approaches (IAPB 2024a). Our findings add to the literature by showing how organisational actors anticipate that VBCs will provide a tangible means for demonstrating biodiversity impact and reporting nature-related impact. This finding suggests that one way interest in VBCs might be translated into action is through strategy, as organisations search for novel options for biodiversity management (Panwar et al. 2023) or nature positive commitment (White et al. 2024). This finding is consistent with research showing that VBCs impact upon share performance (Garel et al. 2024; Kalhoro and Kyaw 2024; Cherief et al. 2022) and are expected to assist in nature related disclosure and reporting, such as those proposed by TNFD and EU CSRD. This finding is also consistent with recent studies demonstrating the relationship between biodiversity risk management and reputation (Bach et al. 2025; Bassen et al. 2024; Maroun and Ecim 2024). Our findings provide evidence that at a micro-level demand side actors, especially large corporations, are likely to use biodiversity credits when there is a clear strategic rationale. As such, VBCs are likely to be adopted as part of a broader search for viable options for addressing biodiversity loss.

Our analysis also provides insight into the micro-level motivations of supply-side actors to engage with VBCs. These include anticipated financial returns such as generating revenue from land otherwise unsuitable for agriculture (Department for Environment, Food, and Rural Affairs [Defra] 2023), and diversifying income into new areas, such as ecotourism. Such interest is related to the option to 'stack' (sold separately from a single project) or 'bundle' (sold together from a single project) VBCs with carbon credits and other natural capital assets. While the idea of bundling or stacking ecosystem services has gained considerable attention from market actors (Torabi and Bekessy 2015), these approaches, particularly stacking, though elegant in theory, prove challenging in practice due to additionality concerns and ecological complexities (Wunder et al. 2025; von Hase and Cassin 2018).

Our analysis adds by showing that the interest in VBCs is not only driven by macro-level awareness of biodiversity loss or meso-level market shaping activities but also by micro-level strategic activities undertaken by individual organisations. This finding expands understanding about the diverse range of motivations and attitudes that are currently driving interest in VBCs. For some organisational actors, the primary interest is economic return; for others, VBCs offer an opportunity to generate environmental and social co-benefits with local stakeholders. This includes community development, whereby local communities gain from employment opportunities created by VBCs or even through strengthened legal rights and is also seen as significant. These micro-level insights suggest there is a high level of heterogeneity in the meanings early market actors are constructing to make sense of VBCs. While heterogeneity is common in nascent markets (Rindova and Fombrun 1999), our analysis adds by showing how meaning making in new nature-related markets is characterised by multiple and often competing beliefs (Teo 2024). Further research could explore how such heterogeneity informs the strategic activities undertaken by organisational actors in nascent nature markets.

6 | Conclusion

This article extends understanding about the attitudes and motivations that are shaping participation in the nascent market for VBCs. Our analysis provides insights into the drivers and barriers that are shaping current market dynamics. By focussing on the meanings that are being constructed to support the market

for VBCs we identify future lines of inquiry that are intended to extend understanding about (1) a macro-level shift towards integrating biodiversity in strategy (i.e., changing interpretive domain), (2) meso-level market-shaping activities intended to define and stabilise meanings relating to VBCs and (3) how at a micro-level organisational actors are taking up VBCs as a strategic option for addressing biodiversity loss. Consequently, we add by elaborating meanings that are informing the translation of early market optimism for VBCs into actual investment.

6.1 | Theoretical Implications

Our analysis has theoretical implications for extending understanding about how attitudes and motivations are driving interest in biodiversity credits, a gap identified by Wunder et al. (2025). Specifically, we show how interest in creating a new market for VBCs is reflective of changes emerging at the (macro) level of interpretive domain in which biodiversity strategy is authored. As such, there is scope to explore further how institutionalised normative values associated with markets are shaping strategy intended to protect and enhance biodiversity (Panwar et al. 2023). Our findings add by providing insights into how motivations and attitudes are being interpreted by early market actors as drivers and barriers, which shape participation in the nascent market for VBCs. In doing so, we contribute to the limited academic literature exploring biodiversity finance, relative to climate finance research (Nedopil 2023). To date, much of the debate about VBCs has been conducted in grey literature (WEF 2022, WEF 2023; BCA 2023; IAPB 2024a, IAPB, 2024b, IAPB, 2024c). Furthermore, as noted in the Discussion, our analysis reveals that at a meso-level, there is an opportunity to analyse the effectiveness of coordinated activities designed to stabilise meanings relating to VBCs. While such market shaping activities are viewed as significant for developing a market for VBCs (Wunder et al. 2025), to date little attention has been afforded to how best practice is being defined and diffused. Such research is timely as the idea of exchanging units of biodiversity is relatively novel but has far reaching implications given the extent of biodiversity loss. There is an opportunity for future studies exploring how meso-level actors manage tensions emerging as market-based meanings are applied to biodiversity.

Our analysis also has implications for future studies exploring how attitudes and motivations relating to biodiversity credits are shaping organisational strategy with regards to biodiversity. Our study shows how focusing on a specific option (credits) can provide insight into how organisational actors are adapting to a changing interpretive domain in which biodiversity is becoming more central to strategy making (Panwar et al. 2023; Schaltegger et al. 2023; White et al. 2024) or at the least is harder to ignore (Bansal et al. 2025). Because biodiversity is rarely examined in mainstream strategy research (Bansal et al. 2025), there is much scope for future research analysing how organisational actors are integrating biodiversity credits, and indeed other biodiversity options, into strategy.

Last, though beyond the scope of this research, we see potential for research taking a more holistic approach by integrating micro, meso and macro levels. We suggest that analysing the three levels holistically is vital for extending understanding about how the biodiversity crisis is beginning to reshape the competitive terrain in which strategy is developed (Rindova and Fombrun 1999). As such there is a need for interpretive research designs that can dig deeper into meaning making processes, which are being enacted to reimagine relationships connecting organisational activities with the biosphere (Bansal et al. 2025; Panwar et al. 2023; Nedopil 2023; White et al. 2023). One option is to adopt a cultural entrepreneurship lens so as to analyse the stories and narratives that are circulating within the nascent market for VBCs (see Lounsbury et al. 2019). Such an approach would be valuable for extending insight into the how tackling biodiversity loss necessitates a shift in meaning making so as to reconfigure representations of biodiversity and nature with the material effects of organisational activities. Other interpretative approaches, such as those leveraging multimodal data analysis (e.g., visual), might further assist in elaborating the meaning making processes shaping new nature credits markets, such as VBCs.

6.2 | Practical Implications

6.2.1 | Policy Implications

The findings of this study also have practical implications for policymakers. As we show, the market for VBC is still very much in its infancy and faces numerous challenges. Addressing these challenges and reducing market barriers requires strong policy directives, especially where the aim is to develop high-integrity credits.

Governments play a critical role in designing policies and legal frameworks that encourage or mandate organisations to assess and report their biodiversity impacts, in alignment with Target 15 of the GBF (Convention on Biological Diversity 2024). Clear regulatory structures are also needed in related areas such as land use for biodiversity and inheritance tax. For example, in such credit projects, clear frameworks regarding the liability to deliver purchased units if things go wrong can reduce uncertainty in the market. Additionally, governments can support market development by restructuring agricultural subsidies to encourage biodiversity-positive land management strategies, protecting against perverse incentives and ensuring that restoration activities are not penalised under future regulatory regimes. However, increasing regulations may also have downsides such as increased bureaucracy and regulatory staff with insufficient qualifications slowing down voluntary actions (Wunder et al. 2025). Moreover, well-defined market rules are needed in currently ambiguous areas such as stacking, bundling and the use of credits for compensation. Clarifying what buyers and suppliers can and cannot do with biodiversity credits will help reduce information asymmetries and define responsibilities within the market. We also note that voluntary credits should not be seen as a replacement for existing nature protection mechanisms or public funding for biodiversity. They should instead complement and co-exist alongside other established mechanisms.

6.2.2 | Managerial Implications

This study provides practical implications by highlighting the barriers and drivers that market actors face when developing

VBCs. One practical recommendation is for managers to engage in meso-level discussions, for example, by joining relevant networks. Membership of such networks (e.g., BCA Forum) is fast growing and provides a means by which managers can connect with a diverse range of voices and views currently shaping the market for VBCs, such as scientific experts, environmental NGOs and representatives from Indigenous Peoples and Local Communities (IPLCs). Through these networks, managers can access best practices and build the multistakeholder relationships essential for market credibility. Such engagement may address the limitations of industry self-governance identified by Bansal et al. (2025), fostering the collaborative governance necessary for establishing high-integrity biodiversity credit markets.

Another practical recommendation concerns the integration of biodiversity credits into institutional frameworks. For instance, the Science-Based Targets initiative's (SBTi) Beyond Value Chain Mitigation (BVCM) framework (Benson et al. 2024) currently recognizes voluntary carbon credits as a mechanism to scale mitigation beyond company value chains. However, it does not explicitly reference biodiversity uplift or biodiversity credits. Integrating biodiversity credits into such frameworks could play a critical role in guiding corporate investments towards biodiversity and creating incentives for action in this field.

6.3 | Limitations and Future Research

This research has some limitations. The absence of a well-defined market for VBCs posed challenges in determining the research population. The research provides some clarity on this, and as the market matures, this limitation may further diminish. Clearer understanding of the population creates opportunities for quantitative research methods using larger sample sizes that are representative of the growing market. Such studies could, for example, analyse potential barriers to the development of the VBC market by ranking them according to their significance. Moreover, this study was limited by its focus on the UK context; further research could explore the international landscape, investigating the implementations, opportunities **and** barriers associated with these credits from a broader, or global, perspective. In particular, future research could prioritise engaging with stakeholders to better understand the risks and opportunities that biodiversity credits present for IPLCs. Given the rapidly evolving nature of debates in the VBC market, our analysis provides a snapshot of the heterogeneous views and interests shaping this emerging market. Longitudinal research could also offer valuable insights into how markets for nature credits, such as VBCs, evolve over time.

Author Contributions

Gamze Yakar-Pritchard: conceptualization, data curation, formal analysis, investigation, methodology, project administration, validation, visualization, writing – original draft. **Andrew Greenman:** conceptualization, data curation, funding acquisition, investigation, methodology, validation, supervision, writing – review and editing. **Stacia Stetkiewicz:** conceptualization, funding acquisition, supervision, writing – review and editing. **Bouwe Dijkstra:** conceptualization, funding acquisition, supervision, writing – review and editing. **Frances Bowen:** conceptualization, funding acquisition, supervision, writing – review and editing. **Richard Field:** conceptualization, funding acquisition, supervision, writing – review and editing.

Acknowledgements

The authors thank the Natural Environment Research Council (NERC) and the Economic and Social Research Council (ESRC) for providing funding through their joint Economics of Biodiversity programme. All authors were supported by grant NE/X00208X/1.

Funding

This work was supported by the Economic and Social Research Council and the Natural Environment Research Council (NE/X00208X/1).

References

Adams, W. C. 2015. "Conducting Semi-Structured Interviews." In *Handbook of Practical Program Evaluation*, 492–505. Josey-Bass. https://doi.org/10.1002/9781119171386.ch19.

Alharahsheh, H. H., and A. Pius. 2020. "A Review of Key Paradigms: Positivism vs Interpretivism." *Global Academic Journal of Humanities and Social Sciences* 2, no. 3: 39–43. https://gajrc.com/media/articles/GAJHSS_23_39-43_VMGJbOK.pdf.

Ali, R., I. M. García-Sánchez, B. Aibar-Guzmán, and R. U. Rehman. 2024. "Is Biodiversity Disclosure Emerging as a Key Topic on the Agenda of Institutional Investors?" *Business Strategy and the Environment* 33, no. 3: 2116–2142. https://doi.org/10.1002/bse.3587.

Alvesson, M., and K. Sköldberg. 2017. *Reflexive Methodology: New Vistas for Qualitative Research*. Sage.

Antonelli, A., X. Rueda, R. Calcagno, and P. Nantongo Kalunda. 2024. "How Biodiversity Credits Could Help to Conserve and Restore Nature." *Nature* 634, no. 8036: 1045–1049. https://doi.org/10.1038/d41586-024-03475-2.

Atkins, J. F., B. Atkins, W. Maroun, E. Barone, and D. Gozman. 2023. "Conservation Through Conversation? Therapeutic Engagement on Biodiversity and Extinction Between NGOs and Companies." *Business Strategy and the Environment* 32, no. 5: 2631–2647. https://doi.org/10.1002/bse.3144.

Bach, T. N., K. Hoang, and T. Le. 2025. "Biodiversity Risk and Firm Performance: Evidence From US Firms." *Business Strategy and the Environment* 34, no. 1: 1113–1132. https://doi.org/10.1002/bse.4039.

Balmford, A., P. H. Brancalion, D. Coomes, et al. 2023. "Credit Credibility Threatens Forests." *Science* 380, no. 6644: 466–467. https://doi.org/10.1126/science.adh3426.

Bansal, P., R. Durand, M. Kreutzer, S. Kunisch, and A. M. McGahan. 2025. "Strategy Can no Longer Ignore Planetary Boundaries: A Call for Tackling Strategy's Ecological Fallacy." *Journal of Management Studies* 62, no. 2: 965–985. https://doi.org/10.1111/joms.13088.

Bassen, A., D. Buchholz, K. Lopatta, and A. R. Rudolf. 2024. "Biodiversity Management and Stock Price Crash Risk." *Business Strategy and the Environment* 33, no. 5: 4788–4805. https://doi.org/10.1002/bse.3725.

Benson, S., A. Farrelly, E. Watson, et al. 2024. "Above and Beyond: An SBTI Report on the Design and Implementation of Beyond Value Chain Mitigation (BVCM)." Science Based Targets. https://sciencebasedtargets.org/resources/files/Above-and-Beyond-Report-on-BVCM.pdf.

Biodiversity Credit Alliance (BCA). 2023. Demand-Side Sources and Motivation for Biodiversity Credits. https://www.biodiversitycreditalliance.org/wp-content/uploads/2024/05/BCAIssuePaper_DemandOverview06122023-final.pdf.

Biodiversity Credit Alliance (BCA). 2024a. Definition of a Biodiversity Credit. https://www.biodiversitycreditalliance.org/wp-content/uploads/2024/05/Definition-of-a-Biodiversity-Credit-Rev-220524.pdf.

Biodiversity Credit Alliance (BCA). 2024b. Review Mechanisms for Supply-Side Quality and Integrity in the Biodiversity Credit Market. https://www.biodiversitycreditalliance.org/wp-content/uploads/2024/05/Review_Mechanisms_for_Supply-side_Quality_and_Integrity_in_the_Biodiversity_Credit_Market_Rev-260424_v2.pdf.

Biodiversity Credit Alliance (BCA). 2024c. High Level Principles to Guide the Biodiversity Credit Market. https://www.biodiversitycreditalliance.org/wp-content/uploads/2024/11/BCA_High-level-Principles-to-Guide-the-Biodiversity-Market-working-paper-EN_ES_FR.pdf.

Bloom Labs. 2025. Deep Dive: Biodiversity Credit Sales. https://sgradeckas.substack.com/p/deep-dive-biodiversity-credit-sales?r=2j49nh.

Booth, H., E. J. Milner-Gulland, N. McCormick, and M. Starkey. 2024. "Operationalizing Transformative Change for Business in the Context of Nature Positive." *One Earth* 7, no. 7: 1235–1249. https://doi.org/10.1016/j.oneear.2024.06.003.

Braun, V., and V. Clarke. 2012. "Thematic Analysis." In *APA Handbook of Research Methods in Psychology, Vol. 2. Research Designs: Quantitative, Qualitative, Neuropsychological, and Biological*, edited by H. Cooper, P. M. Camic, D. L. Long, A. T. Panter, D. Rindskopf, and K. J. Sher, 57–71. American Psychological Association. https://doi.org/10.1037/13620-004.

British Standards Institution (BSI). 2024. Nature Markets – Supply of Biodiversity Benefits – Specification. BSI Standards Limited, BSI Flex 702 v1.0:2024–10. https://www.bsigroup.com/siteassets/pdf/en/insights-and-media/insights/brochures/bsi_flex_702.pdf.

Bromley, H. 2024. Biodiversity Finance Factbook. Biodiversity COP16 Edition. BloombergNEF. https://assets.bbhub.io/professional/sites/24/Biodiversity-Finance-Factbook_COP16.pdf.

Burns, M., J. Bally, M. Burles, L. Holtslander, and S. Peacock. 2022. "Constructivist Grounded Theory or Interpretive Phenomenology? Methodological Choices Within Specific Study Contexts." *International Journal of Qualitative Methods* 21: 16094069221077758. https://doi.org/10.1177/16094069221077758.

Byrne, D. 2022. "A Worked Example of Braun and Clarke's Approach to Reflexive Thematic Analysis." *Quality and Quantity* 56, no. 3: 1391–1412. https://doi.org/10.1007/s11135-021-01182-y.

Carvalho, S. H. C.d., T. Cojoianu, and F. Ascui. 2023. "From Impacts to Dependencies: A First Global Assessment of Corporate Biodiversity Risk Exposure and Responses." *Business Strategy and the Environment* 32, no. 5: 2600–2614. https://doi.org/10.1002/bse.3142.

Cherief, A., T. Sekine, and L. Stagnol 2022. The Market Effect of Acute Biodiversity Risk: The Case of Corporate Bonds. https://ssrn.com/abstract=4288552.

Convention on Biological Diversity. 2024. The Biodiversity Plan for Life on Earth. https://www.cbd.int/gbf.

Dasgupta, P. 2021. *The Economics of Biodiversity: The Dasgupta Review*. HM Treasury. https://www.gov.uk/government/publications/final-report-the-economics-of-biodiversity-the-dasgupta-review.

de Silva, G. C., E. C. Regan, E. H. B. Pollard, and P. F. E. Addison. 2019. "The Evolution of Corporate No Net Loss and Net Positive Impact Biodiversity Commitments: Understanding Appetite and Addressing Challenges." *Business Strategy and the Environment* 28, no. 7: 1481–1495. https://doi.org/10.1002/bse.2379.

Department for Environment, Food & Rural Affairs (Defra). 2023. Sell Biodiversity Units as a Land Manager. https://www.gov.uk/guidance/sell-biodiversity-units-as-a-land-manager.

Deutz, A., G. M. Heal, R. Niu, et al. 2020. "Financing Nature: Closing the Global Biodiversity Financing Gap." Paulson Institute, the Nature Conservancy, and the Cornell Atkinson Center for Sustainability. https://www.paulsoninstitute.org/wp-content/uploads/2020/10/FINANCING-NATURE_Full-Report_Final-with-endorsements_101420.pdf.

Díaz, S., J. Settele, E. S. Brondízio, et al. 2019. "Pervasive Human-Driven Decline of Life on Earth Points to the Need for Transformative Change." *Science* 366, no. 6471: eaax3100. https://doi.org/10.1126/science.aax3100.

Ducros, A., and P. Steele. 2022. *Biocredits to Finance Nature and People: Emerging Lessons*. International Institute for Environment and Development. https://www.iied.org/sites/default/files/pdfs/2022-11/21216IIED.pdf.

Duffus, N. E., O. T. Lewis, R. Grenyer, et al. 2024. "Leveraging Biodiversity Net Gain to Address Invertebrate Declines in England." Insect Conservation and Diversity. https://doi.org/10.1111/icad.12820.

Environment Act 2021, c.30. 2021 Environment Act 2021. https://www.legislation.gov.uk/ukpga/2021/30/contents.

Fontana, A., and J. H. Frey. 2005. "The Interview." *Sage Handbook of Qualitative Research* 3, no. 1: 695–727.

Ford, H. V., F. Schrodt, A. Zieritz, et al. 2024. "A Technological Biodiversity Monitoring Toolkit for Biocredits." *Journal of Applied Ecology* 61, no. 9: 2007–2019. https://doi.org/10.1111/1365-2664.14725.

Garel, A., A. Romec, Z. Sautner, and A. F. Wagner. 2024. "Do Investors Care About Biodiversity?" *Review of Finance* 28, no. 4: 1151–1186. https://doi.org/10.1093/rof/rfae010.

Gioia, D. A., K. G. Corley, and A. L. Hamilton. 2013. "Seeking Qualitative Rigor in Inductive Research: Notes on the Gioia Methodology." *Organizational Research Methods* 16, no. 1: 15–31. https://doi.org/10.1177/1094428112452151.

Glegg, S. M. 2019. "Facilitating Interviews in Qualitative Research With Visual Tools: A Typology." *Qualitative Health Research* 29, no. 2: 301–310. https://doi.org/10.1177/1049732318786485.

International Advisory Panel on Biodiversity Credits (IAPB). 2024a. Framework for High Integrity Biodiversity Credit Markets. https://www.iapbiocredits.org/framework.

International Advisory Panel on Biodiversity Credits (IAPB). 2024b. Recommendations for High Integrity Demand for Biodiversity Credits. Demand Working Group Report. http://www.iapbiocredits.org/resources.

International Advisory Panel on Biodiversity Credits (IAPB). 2024c. Design Criteria for High Integrity Measurement of Biodiversity Credits. IAPB Measurement Working Group. https://www.iapbiocredits.org/resources.

Kalhoro, M. R., and K. Kyaw. 2024. "Manage Biodiversity Risk Exposure?" *Finance Research Letters* 61: 104989. https://doi.org/10.1016/j.frl.2024.104989.

Koellner, T., J. Sell, and G. Navarro. 2010. "Why and How Much Are Firms Willing to Invest in Ecosystem Services From Tropical Forests? A Comparison of International and Costa Rican Firms." *Ecological Economics* 69, no. 11: 2127–2139. https://doi.org/10.1016/j.ecolecon.2010.05.010.

Krause, M. S., N. Droste, and B. Matzdorf. 2021. "What Makes Businesses Commit to Nature Conservation?" *Business Strategy and the Environment* 30, no. 2: 741–755. https://doi.org/10.1002/bse.2650.

Krause, M. S., and B. Matzdorf. 2019. "The Intention of Companies to Invest in Biodiversity and Ecosystem Services Credits Through an Online-Marketplace." *Ecosystem Services* 40: 101026. https://doi.org/10.1016/j.ecoser.2019.101026.

Löfqvist, S., R. D. Garrett, and J. Ghazoul. 2023. "Incentives and Barriers to Private Finance for Forest and Landscape Restoration." *Nature Ecology & Evolution* 7, no. 5: 707–715. https://doi.org/10.1038/s41559-023-02037-5.

Lounsbury, M., J. Gehman, and M. Ann Glynn. 2019. "Beyond Homo Entrepreneurus: Judgment and the Theory of Cultural Entrepreneurship." *Journal of Management Studies* 56, no. 6: 1214–1236. https://doi.org/10.1111/joms.12429.

Lounsbury, M., and M. A. Glynn. 2001. "Cultural Entrepreneurship: Stories, Legitimacy, and the Acquisition of Resources." *Strategic Management Journal* 22, no. 6–7: 545–564. https://doi.org/10.1002/smj.188.

Lumivero. 2023. NVivo (Version 14) [Computer Software] https://lumivero.com/products/nvivo/.

Maczik, D. M., V. A. Jansen, and A. G. Rossberg. 2024. "Evaluating Biodiversity Credits Using Metacommunity Modelling." *bioRxiv*: 2024-06. https://doi.org/10.1101/2024.06.03.597228.

Maroun, W., and D. Ecim. 2024. "Biodiversity Reporting by United Kingdom (UK)-Listed Companies: A Review of Extent, Content and Readability of Disclosures." *Business Strategy and the Environment* 33, no. 8: 7800–7824. https://doi.org/10.1002/bse.3866.

Mckinsey and Co. 2022. Nature in the Balance: What Companies Can Do to Restore Natural Capital https://www.mckinsey.com/capabilities/sustainability/our-insights/nature-in-the-balance-what-companies-can-do-to-restore-natural-capital.

Medina, C., and I. R. Scales. 2024. "Finance and Biodiversity Conservation: Insights From Rhinoceros Conservation and the First Wildlife Conservation Bond." *Oryx* 58, no. 1: 90–99. https://doi.org/10.1017/S0030605322001648.

Mirova. 2024. Environmental Market Instruments. Position Paper. https://www.mirova.com/sites/default/files/2024-03/environmental-market-instruments-position-paper.pdf.

Montgomery, A. W., T. P. Lyon, and J. Barg. 2024. "No End in Sight? A Greenwash Review and Research Agenda." *Organization & Environment* 37, no. 2: 221–256. https://doi.org/10.1177/10860266231168905.

Moxey, A., M. A. Smyth, E. Taylor, and A. P. Williams. 2021. "Barriers and Opportunities Facing the UK Peatland Code: A Case-Study of Blended Green Finance." *Land Use Policy* 108: 105594. https://doi.org/10.1016/j.landusepol.2021.105594.

NatureFinance. 2023. The Future of Biodiversity Credit Markets: Governing High-Performance Biodiversity Credit Markets. (Taskforce on Nature Markets and NatureFinance). https://www.naturefinance.net/wp-content/uploads/2023/02/TheFutureOfBiodiversityCreditMarkets.pdf.

NatureFinance & Pollination. 2023. Biodiversity Credit Markets: The Role of Law, Regulation and Policy. (Taskforce on Nature Markets). Geneva, Switzerland. https://www.naturemarkets.net/publications/biodiversity-credit-markets.

Nedopil, C. 2023. "Integrating Biodiversity Into Financial Decision-Making: Challenges and Four Principles." *Business Strategy and the Environment* 32, no. 4: 1619–1633. https://doi.org/10.1002/bse.3208.

Panwar, R., H. Ober, and J. Pinkse. 2023. "The Uncomfortable Relationship Between Business and Biodiversity: Advancing Research on Business Strategies for Biodiversity Protection." *Business Strategy and the Environment* 32, no. 5: 2554–2566. https://doi.org/10.1002/bse.3139.

Parker, C., S. Scott, and A. Geddes. 2019. *Snowball Sampling*. SAGE Research Methods Foundations. http://methods.sagepub.com/foundations/snowball-sampling.

Patton, M. Q. 2014. *Qualitative Research & Evaluation Methods: Integrating Theory and Practice*. Sage Publications.

Plan Vivo (PV Nature). 2023. Methodology & Data Protocol https://www.planvivo.org/pv-nature-documentation.

Pollination. 2023. State of Voluntary Biodiversity Credit Markets: A Global Review of Biodiversity Credit Schemes. Retrieved September 03, 2024, from https://pollinationgroup.com/wp-content/uploads/2023/10/Global-Review-of-Biodiversity-Credit-Schemes-Pollination-October-2023.pdf.

Pontikes, E. G., and V. P. Rindova. 2020. "Shaping Markets Through Temporal, Constructive, and Interactive Agency." *Strategy Science* 5, no. 3: 149–159. https://doi.org/10.1287/stsc.2020.0110.

Probst, B., M. Toetzke, A. Kontoleon, L. Diaz Anadon, and V. H. Hoffmann. 2023. Systematic Review of the Actual Emissions Reductions of Carbon Offset Projects Across All Major Sectors. https://doi.org/10.21203/rs.3.rs-3149652/v1.

Rampling, E. E., S. O. Zu Ermgassen, I. Hawkins, and J. W. Bull. 2024. "Achieving Biodiversity Net Gain by Addressing Governance Gaps Underpinning Ecological Compensation Policies." *Conservation Biology* 38, no. 2: e14198. https://doi.org/10.1111/cobi.14198.

Richardson, K., W. Steffen, W. Lucht, et al. 2023. "Earth Beyond Six of Nine Planetary Boundaries." *Science Advances* 9, no. 37: eadh2458. https://doi.org/10.1126/sciadv.adh2458.

Rindova, V. P., and C. J. Fombrun. 1999. "Constructing Competitive Advantage: The Role of Firm–Constituent Interactions." *Strategic Management Journal* 20, no. 8: 691–710. https://doi.org/10.1002/(SICI)1097-0266(199908)20:8%3C691::AID-SMJ48%3E3.0.CO;2-1.

Rindova, V. P., L. L. Martins, S. B. Srinivas, and D. Chandler. 2018. "The Good, the Bad, and the Ugly of Organizational Rankings: A Multidisciplinary Review of the Literature and Directions for Future Research." *Journal of Management* 44, no. 6: 2175–2208. https://doi.org/10.1177/0149206317741962.

Rockström, J., J. Gupta, D. Qin, et al. 2023. "Safe and Just Earth System Boundaries." *Nature* 619, no. 7968: 102–111. https://doi.org/10.1038/s41586-023-06083-8.

Rossberg, A. G., J. D. O'Sullivan, S. Malysheva, and N. M. Shnerb. 2024. "A Metric for Tradable Biodiversity Credits Quantifying Impacts on Global Extinction Risk." *Journal of Industrial Ecology* 28, no. 4: 1009–1021. https://doi.org/10.1111/jiec.13518.

Schaltegger, S., D. Gibassier, and K. Maas. 2023. "Managing and Accounting for Corporate Biodiversity Contributions. Mapping the Field." *Business Strategy and the Environment* 32, no. 5: 2544–2553. https://doi.org/10.1002/bse.3166.

Seidl, A., T. Cumming, M. Arlaud, C. Crossett, and O. van den Heuvel. 2024. "Investing in the Wealth of Nature Through Biodiversity and Ecosystem Service Finance Solutions." *Ecosystem Services* 66: 101601. https://doi.org/10.1016/j.ecoser.2024.101601.

Smith, G. S., F. Ascui, A. P. O'Grady, and E. Pinkard. 2024. "Indicators for Measuring and Reporting Corporate Nature-Related Impacts, Dependencies, and Risks." *Environmental and Sustainability Indicators* 22: 100351. https://doi.org/10.1016/j.indic.2024.100351.

St-Laurent, G. P., S. Hagerman, and G. Hoberg. 2017. "Barriers to the Development of Forest Carbon Offsetting: Insights From British Columbia, Canada." *Journal of Environmental Management* 203: 208–217. https://doi.org/10.1016/j.jenvman.2017.07.051.

Suchman, M. C. 1995. "Managing Legitimacy: Strategic and Institutional Approaches." *Academy of Management Review* 20, no. 3: 571–610. https://doi.org/10.5465/amr.1995.9508080331.

Swinfield, T., S. Shrikanth, J. W. Bull, A. Madhavapeddy, and S. O. zu Ermgassen. 2024. "Nature-Based Credit Markets at a Crossroads." *Nature Sustainability* 7, no. 10: 1217–1220. https://doi.org/10.1038/s41893-024-01403-w.

Taskforce on Nature-related Financial Disclosures (TNFD). 2023. Recommendations of the Taskforce on Nature-Related Financial Disclosures. https://tnfd.global/wp-content/uploads/2023/08/Recommendations_of_the_Taskforce_on_Nature-related_Financial_Disclosures_September_2023.pdf?v=1695118661.

Teo, B. 2024. "'This Is Not a Forum for Reducing Poverty': The Moral Economy of the Voluntary Carbon Market." *Environmental Sociology* 10, no. 4: 371–384. https://doi.org/10.1080/23251042.2024.2359766.

Torabi, N., and S. A. Bekessy. 2015. "Bundling and Stacking in Bio-Sequestration Schemes: Opportunities and Risks Identified by Australian Stakeholders." *Ecosystem Services* 15: 84–92. https://doi.org/10.1016/j.ecoser.2015.08.001.

Townsend, D. M., R. A. Hunt, J. S. McMullen, and S. D. Sarasvathy. 2018. "Uncertainty, Knowledge Problems, and Entrepreneurial Action." *Academy of Management Annals* 12, no. 2: 659–687. https://doi.org/10.5465/annals.2016.0109.

Treepongkaruna, S. 2024. "Corporate Sustainability and Biodiversity Reporting: A Proactive Business Strategy to Mitigate Litigation and Reputational Risks." *Business Strategy and the Environment* 33, no. 7: 6640–6651. https://doi.org/10.1002/bse.3840.

Trencher, G., S. Nick, J. Carlson, and M. Johnson. 2024. "Demand for Low-Quality Offsets by Major Companies Undermines Climate Integrity of the Voluntary Carbon Market." *Nature Communications* 15, no. 1: 6863. https://doi.org/10.1038/s41467-024-51151-w.

United Nations Climate Change. 2022. What Is the Triple Planetary Crisis? https://unfccc.int/news/what-is-the-triple-planetary-crisis.

von Hase, A., and J. Cassin. 2018. *Theory and Practice of 'Stacking' and 'Bundling' Ecosystem Goods and Services: A Resource Paper*. Business and Biodiversity Offsets Programme (BBOP) Forest Trends. https://www.forest-trends.org/bbop_pubs/stacking_and_bundling.

Wallacea Trust. 2023. Methodology for Quantifying Units of Biodiversity Gain https://wallaceatrust.org/wp-content/uploads/2022/12/Biodiversity-credit-methodology-V3.pdf.

West, T. A., J. Börner, E. O. Sills, and A. Kontoleon. 2020. "Overstated Carbon Emission Reductions From Voluntary REDD+ Projects in the Brazilian Amazon." *Proceedings of the National Academy of Sciences of the United States of America* 117, no. 39: 24188–24194. https://doi.org/10.1073/pnas.2004334117.

White, T. B., T. Bromwich, A. Bang, et al. 2024. "The "Nature-Positive" Journey for Business: A Conceptual Research Agenda to Guide Contributions to Societal Biodiversity Goals." *One Earth* 7, no. 8: 1373–1386. https://doi.org/10.1016/j.oneear.2024.07.003.

White, T. B., S. O. Petrovan, L. A. Bennun, et al. 2023. "Principles for Using Evidence to Improve Biodiversity Impact Mitigation by Business." *Business Strategy and the Environment* 32, no. 7: 4719–4733. https://doi.org/10.1002/bse.3389.

World Economic Forum (WEF). 2020. Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy. WEF_New_Nature_Economy_Report_2020.pdf.

World Economic Forum (WEF). 2022. Biodiversity Credits: Unlocking Financial Markets for Nature-Positive Outcomes. https://www3.weforum.org/docs/WEF_Biodiversity_Credit_Market_2022.pdf.

World Economic Forum (WEF). 2023. Biodiversity Credits: Demand Analysis and Market Outlook. https://www3.weforum.org/docs/WEF_2023_Biodiversity_Credits_Demand_Analysis_and_Market_Outlook.pdf.

World Wide Fund for Nature (WWF). 2024. WWF Position Voluntary Biodiversity Credits. https://wwfint.awsassets.panda.org/downloads/biodiversity-credits-position---october-2024---final.pdf.

Wunder, S., C. Fraccaroli, J. W. Bull, et al. 2025. "Biodiversity Credits: An Overview of the Current State, Future Opportunities, and Potential Pitfalls." *Business Strategy and the Environment* 34: 1–30. https://doi.org/10.1002/bse.70018.

Yin, R. 2018. *Case Study Research and Applications Design and Methods*. 6th ed. Sage Publications.

Zu Ermgassen, S. O., I. Hawkins, T. Lundhede, Q. Liu, B. J. Thorsen, and J. W. Bull. 2025. "The Current State, Opportunities and Challenges for Upscaling Private Investment in Biodiversity in Europe." *Nature Ecology & Evolution* 9: 515–524. https://doi.org/10.1038/s41559-024-02632-0.

zu Ermgassen, S. O., S. Marsh, K. Ryland, E. Church, R. Marsh, and J. W. Bull. 2021. "Exploring the Ecological Outcomes of Mandatory Biodiversity Net Gain Using Evidence From Early-Adopter Jurisdictions in England." *Conservation Letters* 14, no. 6: e12820. https://doi.org/10.1111/conl.12820.

Supporting Information

Additional supporting information can be found online in the Supporting Information section. **Data S1:** Supporting Information.