The evolution of corporate no net loss and net positive impact biodiversity commitments: Understanding appetite and addressing challenges

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Abstract
The World Economic Forum has identified biodiversity loss as an increasingly significant and impactful risk facing business. However, businesses themselves can negatively impact on biodiversity. Recognizing this, a number of companies have developed their own biodiversity commitments, including those to achieve a no net loss (NNL) or net positive impact (NPI) on biodiversity by balancing or outweighing any negative impacts through mitigation activities. We reviewed corporate-level NNL and NPI commitments over the last two decades to establish the extent of their adoption, retraction, and scientific foundation. Between 2001 and 2016, 66 companies had made NNL/NPI environmental commitments. Thirty three of these 66 companies made specific biodiversity commitments. The numbers of companies making commitments increased in that period. However, some commitments were retracted, or their status became unclear, leaving only 18 companies with active NNL/NPI biodiversity commitments in 2016. Added to this, many of the commitments are lacking science-based criteria that would allow more transparent and systematic assessment of corporate activities. Thus, although commitments are being made, they may not be delivering as intended. To secure real biodiversity gains, we recommend advancing methods to assess biodiversity risks to businesses, and using science-based criteria to deepen corporate commitments and actions. Concerted effort from all sectors is needed to halt and reverse biodiversity loss, and the “biodiversity policy super-year” of 2020 is the perfect moment for business to deliver through well-framed and implemented commitments to biodiversity NPI.

KEYWORDS
development, indicators, mitigation, nature, science-based targets, sustainability
Biodiversity is the variety of life on Earth, from genes, to species, to ecosystems (Convention on Biological Diversity [CBD], 2017a). It is the foundation that supports societies and economies, producing a range of processes and services that benefit people and sustain the health of the planet (Mace, Norris, & Fitter, 2012). Despite recognition of its importance, global biodiversity has declined over the past four decades with little indication of a reduction in the rate of decline (Mace et al., 2018; Tittensor et al., 2014), and the “safe” levels of biodiversity loss have been exceeded (Rockström et al., 2009). For the fourteenth year in a row, the World Economic Forum have registered biodiversity loss as one of the most critical environmental risks facing business (World Economic Forum [WEF], 2019). Biodiversity loss poses significant operational, regulatory, financial, and reputational risks to businesses, which are inextricably linked with other social, geopolitical, and environmental risks (Dempsey, 2016; WEF, 2010).

To strengthen international efforts and accelerate action to combat biodiversity loss, international environmental agreements have been established, such as the Convention on Biological Diversity (CBD, 2011; European Commission, 2017) along with broader societal goals, like the United Nations Sustainable Development Goals, that embed biodiversity conservation in multiple areas of sustainable social and economic development (UN, undated). Businesses are critical actors in supporting efforts to halt biodiversity loss not only because they contribute to significant biodiversity impacts (Addison, Bull, & Milner-Gulland, 2018; Maxwell, Fuller, Brooks, & Watson, 2016) but because many businesses are inextricably linked with and dependent on biodiversity (Dempsey, 2016; TEEB, 2010). In response to this, some businesses have begun to set their own biodiversity commitments at both the operational level and corporate level, such as commitments to achieve a net positive impact (NPI) or no net loss (NNL; Rainey et al., 2015).

The premise behind these kinds of business commitments for biodiversity is that negative biodiversity impacts caused by businesses are either balanced (for NNL) or outweighed (for NPI) by activities that generate biodiversity gains (Aima et al., 2015; Bull, Suttle, Gordon, Singh, & Milner-Gulland, 2013; Forum for the Future, 2015). NNL and NPI commitments for biodiversity are commonly associated with application of the mitigation hierarchy at the operational or site level, where action is taken to avoid, minimize, restore, and where necessary offset any predicted impacts on biodiversity (Business and Biodiversity Offsets Programme [BBOP], 2012; BBOP, 2018; Bull et al., 2013; Cross Sector Biodiversity Initiative and The Biodiversity Consultancy CSBI and TBC, 2015). These types of commitments are related to broader concepts and corporate commitments such as “zero harm,” “net positive effect,” and “zero environmental footprint,” which are now observed as corporate commitments in sustainability, nonfinancial and environmental, social and governance reports (Addison, Bull, & Milner-Gulland, 2018; KPMG, 2017).

Key reasons for uptake of NNL and NPI commitments for biodiversity and associated action include increasingly stringent environmental regulation, financial lender requirements, and increased demand for supply chain transparency from shareholders and stakeholders (BBOP, 2018; Dempsey, 2013; Equator Principles, 2018; WEF, 2010). For example, the International Finance Corporation (IFC), part of the World Bank Group, lends around US$22 billion per year to fund private sector projects in developing countries (Bennun et al., 2018). IFC’s Performance Standard 6 (IFC PS6) requires projects to produce NNL where feasible for “natural habitats” and a NPI (referred to as net gain by IFC) for “critical habitats” (International Finance Corporation, 2012). IFC PS6 has also been adopted by the Equator Principles, for which around 90 financial institutions are signatories, collectively lending approximately $250 billion per year (Bennun et al., 2018; Equator Principles, 2018). This creates an added incentive for companies to make clear commitments for biodiversity, especially those conducting projects at a scale warranting the need to borrow capital from large lenders such as IFC.

In 2001, Solid Energy New Zealand Ltd made the first known NNL/NPI biodiversity commitment to have a “positive net effect on ecosystems” (Rainey et al., 2015). Commitments to NPI and NNL on both biodiversity and the environment have gained momentum since then (Addison, Bull, & Milner-Gulland, 2018; Adler, Mansi, Pandey, & Stringer, 2017; Boiral, 2016). By 2012, after the start of a new decade for business and biodiversity, marked by the World Economic Forum report on biodiversity risks and opportunities for business (WEF, 2010), a total of 18 companies had made public commitments to achieve NNL or NPI for biodiversity (Rainey et al., 2015). Most of these were in sectors with relatively strict environmental regulation such as mining, energy, and manufacturing, but other companies represented less likely sectors such as entertainment and retail. Rainey et al. (2015) suggested that NNL/NPI commitments could make companies more effective in both benefiting biodiversity and managing risk. This applied particularly to companies in high biodiversity impact sectors, which need to comply with national environmental regulation and financial lender requirements and to maintain a good reputation with shareholders and stakeholders (Dempsey, 2013; F&C, 2004).

Rainey et al. (2015) pointed to criteria that could make framing and implementation of existing biodiversity commitments more robust and science-based. These draw on the theory and practice of achieving NNL/NPI at the project level (BBOP, 2018; Bull et al., 2013) and include clearly specifying the biodiversity and impact scope, measuring against a defined and time-bound reference scenario, ensuring actions adhere to the mitigation hierarchy, and the upper limit to applying the mitigation hierarchy where impacts will be wholly avoided (Table 1). In 2012, Rainey et al. (2015) found that few companies met these science-based commitment criteria. This finding has been reinforced by a recent analysis of the world’s largest corporations, which found that few biodiversity commitments include science-based characteristics (e.g., are specific, measurable, and time-bound), and the actions undertaken to achieve biodiversity commitments are rarely quantified to establish whether companies are indeed mitigating their impacts and generating positive outcomes for biodiversity (Addison, Bull, & Milner-Gulland, 2018).

It is now 17 years since the first corporate commitment to NNL/NPI to biodiversity was made, and there has been substantial
momentum in the corporate sustainability space encouraging the integration of environmental issues into business decision-making (WEF, 2019). This decade, the UN’s decade for biodiversity (https://www.cbd.int/2011-2020/), has seen the international conservation community begin to work more closely with the private sector, in recognition that businesses are critical actors that can contribute to international biodiversity goals, and support global efforts to halt the loss of biodiversity (Dempsey, 2016). The purpose of this paper is to assess the trends in corporate NNL and NPI commitments made for biodiversity over the last two decades and to assess whether these commitments and associated activities are becoming more science-based. Given the looming deadline of 2020 when the international conservation community will be reviewing progress on the achievement of the 2011-2020 biodiversity targets, and agreeing a strategy for the next decade for the conservation and sustainable use of biodiversity, we use this assessment to make recommendations about how biodiversity considerations can be truly mainstreamed into the private sector and genuinely embedded into corporate decision-making.

### 2 | METHODS

We assessed corporate-level environmental and biodiversity NNL and NPI commitments made or retracted by companies between 2012 and 2016 to complement and update the assessment undertaken by Rainey et al. (2015), which covered the period between 2001 and 2011. We use the terms NNL and NPI as catch-all terms for corporate goals that aim to have biodiversity gain equalling (NNL) or exceeding (NPI) losses, including “net gain,” which is the term that is being increasingly used in recent years. Our search methodology followed that of Rainey et al. (2015), and involved an online search of corporate sustainability reports and websites, where businesses had made public environmental and biodiversity NNL/NPI commitments. We gathered information from sustainability reports, annual reports, or company websites to assess (a) the trends in the adoption of corporate environment and biodiversity NNL/NPI commitments, (b) the trends in the retraction of corporate biodiversity commitments, and (c) whether corporate biodiversity commitments are becoming more science-based. The following methodological steps were followed.

#### 2.1 | Search strategy

A total of 21 different terms (Table SI in the supporting information), each a variant of NPI or NNL on both biodiversity and the environment, were searched for on Google (i.e., the same set of search terms used by Rainey et al., 2015). Note that our search terms did not include specific ecosystem types (e.g., forests or wetlands; Table SI) and were thus not captured in our search unless these commitments referred to the broader environment and/or biodiversity. “No go”-type commitments (e.g., committing not to operate in World Heritage Sites) and “zero deforestation” commitments were also excluded. These terms have the goal of avoiding or minimizing impacts to particular sites or ecosystems, but crucially for our analysis do not commit to achieving neutrality or a net gain. For each term, the online search continued until five consecutive pages returned no results referring to companies with NPI/NNL commitments. Search terms were entered in English. The process was then repeated using only the search terms “NPI,” “NNL,” and “net neutrality” for different search engines: ask.com, Bing, Yahoo, and Linguee. Linguee was used to search for results in French and Spanish, even though Google also produced results from web pages in other languages using its translation capabilities. The search was undertaken by the lead author between June and August 2017.

For each company identified in the web search, references were collated where the NNL/NPI commitment and associated description of activities were publicly disclosed. For each company, the primary reference sought was a 2016 sustainability or annual report. If these were not available, information was extracted from other online sources (e.g., company website or environmental or sustainability strategy or policy reports). Most reports and documents were

### TABLE 1 Criteria for science-based framing and implementation of biodiversity commitments

| Components                  | Explanation                                                                                                                                 |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Defined biodiversity scope  | Specification of which biodiversity is included, rather than a general mention of “biodiversity” or “environment.”                             |
| Defined impact scope        | Definition of which projects/developments are covered by the commitment.                                                                   |
| Measurable commitment       | By definition, commitments must be measurable, against a specified reference scenario (e.g., static baseline or counterfactual scenario), in order that the progress towards NNL/NPI can be tracked. |
| Mitigation hierarchy        | Clear commitment to following the mitigation hierarchy (avoidance and minimization of impacts, followed by restoration/rehabilitation, and finally, as a last resort, offsets). |
| Upper limits to impacts     | NNL/NPI cannot always be achieved: some impacts cannot be offset. Commitments should acknowledge these upper limits by explicitly outlining impacts that will be wholly avoided. |
| Appropriate time frame       | An explicit time frame for achievement of commitments.                                                                                        |
| Transparency                | Clear, public disclosure of goals, and progress towards them. Ideally, disclosed information would be verified by independent third-parties. Reporting could include making data available on target species or habitats. |

Note. Adapted from Rainey et al. (2015).

Abbreviations: NNL: no net loss; NPI: net positive impact.
downloaded from the company websites themselves and were published in 2016. Descriptive data for each company that were recorded included company name, revenue, profit, year founded, country of origin, sector, year NNL/NPI commitment was introduced, commitment type, and whether or not it was targeted towards biodiversity specifically. In instances when the year of the commitment was not specified, the year of the first annual/sustainability report in which the commitment was mentioned was used. If annual/sustainability reports were not available, the year in which the web page containing the commitment was published was used. For companies recorded between 2001 and 2011, the commitment year identified and verified by Rainey et al. (2015) was used. Companies that made NNL/NPI environment commitments, which included disclosure of biodiversity conservation actions, were recorded, but these companies were not counted as having a specific NNL/NPI for biodiversity commitment, unlike in Rainey et al. (2015).

Only companies with corporate-level NNL/NPI policies for the environment or biodiversity were recorded, and thus, those with project-level commitments (without an overarching corporate-level commitment) were excluded. Other excluded companies were those that provided consultancy on NNL/NPI approaches (such as environmental consultancies) and companies that were part of forums or groups, such as the Net Positive Project (Forum for the Future, 2017), but did not have their own official, individual NNL/NPI policy.

2.2 | Coding of company commitments

All coding was done by the lead author (G. C. d. S.), with 50% of this coding validated by a coauthor (P. F. E. A.). The coders discussed the categorization of information and coding of the reports to assess any discrepancies. Inconsistencies were reconciled prior to data analysis. Company commitments were either classified as NPI commitments or NNL commitments for biodiversity and/or the environment. In most instances, companies explicitly used the phrases NPI or NNL or phrases with a close resemblance (e.g., net gain and zero net impact). Some companies used less directly comparable language (e.g., acre for acre). Classification in these cases depended on whether the phrase implied positive impacts outweighing (NPI) or balancing (NNL) negative impacts. A company was deemed to have a specific commitment for biodiversity if it mentioned the application of NNL/NPI to biodiversity or aspects of biodiversity such as “ecosystems,” “ecosystem services,” “species,” “wildlife,” “plants,” “habitats,” or “nature.” A company was deemed to have an NNL/NPI commitment to the environment if it mentioned the application of NNL/NPI to the “environment” or an aspect of the environment such as “green space.”

Commitments were classified as “active,” “retracted,” or “unclear” in 2016. Active commitments were those that were featured in 2016 annual or sustainability reports or, if a company did not produce such reports, were present on the company websites. Retracted commitments were those that were featured in previously published annual or sustainability reports, but were no longer featured in 2016 reports, or were removed from the company’s website (again for those that did not publish annual/sustainability reports), whether or not a reason was given. Unclear commitments were classified as those that were featured in previous annual/sustainability reports, but the current status of the commitment was unknown due to the unavailability of 2016 reports.

2.3 | Assessment of commitments and activities against science-based criteria

The commitments and activities of each company that had made NNL/NPI biodiversity commitments were analysed based on criteria for science-based framing and implementation (Table 1). To do this, companies’ 2016 sustainability or annual reports were assessed. If reports for 2016 were not available, then the company was excluded from this part of the analysis (i.e., company websites were not used as alternative sources, as these were not detailed enough to carry out this analysis). Seventeen companies were included in this analysis (one was excluded due to the unavailability of an annual/sustainability report).

Within each sustainability/annual report, the text (including tables, figures, and charts) associated with the NNL/NPI commitment itself, and with the activities undertaken or planned towards such commitments, was analysed using the criteria for science-based framing and implementation (Table 1). All activities associated with biodiversity reported in the same document were assumed to be working towards stated NNL/NPI commitments. Details of the search methodology followed to assess meeting criteria for science-based framing and implementation are outlined in Table S3.

3 | RESULTS

3.1 | Trends in corporate biodiversity commitments

By 2016, a total of 66 companies had made NNL/NPI commitments to the environment (Figure 1). These companies were from 19 different sectors, originated from 20 countries, ranged in age from 1 to 145 years (median 62 years) and ranged in turnover from approximately US$ 10.7 million to US$ 482 billion (median US$ 5.5 billion; for those companies for whom financial information was available). Out of those 66 companies, 33 companies (representing 10 sectors) also made specific commitments for NNL/NPI on biodiversity (e.g., Stockland: “To reduce our environmental impact we aim to achieve ... a net positive impact on biodiversity across our new developments by FY2017”; Stockland Annual Review 2016, p62; Figure 2). An additional seven companies with NNL/NPI commitments for the environment included disclosure of actions for biodiversity but did not have explicit NNL/NPI on biodiversity commitments (e.g., James Finlay Ltd: “We aim to have `zero net impact` as our minimum environmental standard. [as part of this we aim to] Protect and enhance biodiversity in the countries in which we operate”; Finlays, 2016).

Companies making environmental commitments used phrases such as “net positive impact on the environment” and “environmental
neutrality,” whereas companies making more specific biodiversity commitments used phrases such as “no net loss of biodiversity,” “overall positive balance [on biodiversity],” and “net positive impact on biodiversity” (Table S4). Of the total 33 companies making NNL/NPI biodiversity commitments in 2016, 48% made commitments of NPI and 61% of NNL for biodiversity (some companies committed to both; Table 2; e.g., Newmont Mining Corporation: “Our commitment ... achieving no net loss and providing a net gain, when possible, of key biodiversity values”; Newmont, 2016). A similar proportion of companies made broader environmental commitments to achieve NPI (58%) compared with NNL (48%; Table 2).

Decadal trends for companies from 2001 to 2010 and from 2011 to 2016 reveal an approximate doubling in the number of companies making NNL/NPI commitments to the environment and biodiversity (29 companies in 2001–2010 and an additional 37 companies in 2011–2016; Table 2). The last two decades has also seen a diversification of industry sectors making NNL/NPI commitments to the environment and biodiversity (12 sectors in 2001–2010 and 23 sectors in 2011–2016; Figures 1 and 2). During 2001–2010, the majority of companies making NNL/NPI commitments specifically to biodiversity were from the mining sector (69%), followed by the energy sector (8%), construction (8%), and other sectors (e.g., building materials and retail; 15%). In comparison, from 2011 to 2016, the majority of companies making NNL/NPI biodiversity commitments were still from the mining sector (31%), followed by energy (19%), construction (13%), and new sectors such as food and beverage (6%). In addition, the “other” category (e.g., building materials, infrastructure, banking and investment, real estate, and shipping) represented a significant 31%, further illustrating the growing diversity of sectors committing to NNL/NPI.

During 2001–2010, the companies making NNL/NPI commitments to biodiversity were primarily from “high-risk” biodiversity sectors (92%), such as mining, construction, energy, and building materials (risk posed to a company through, e.g., access to land, capital or markets, and relations with regulators; F&C, 2004), followed by companies from medium risk sectors (e.g., finance and retail; 8%). Years 2011–2016 saw additional diversification in the distribution across the biodiversity risk sectors, with a slightly lower proportion of companies making NNL/NPI commitments from high risk sectors (81%) and a higher proportion of companies from medium risk sectors (19%). A notable absence is the relative lack of companies from the high-risk sectors of food and beverage (including their suppliers) and forestry and paper. The notable exceptions being Barry Callebaut
and Pukka Herbs (which as of 2018 is a wholly owned subsidiary of Unilever). These sectors have taken a different route to managing risk, one focused on commodity certification and more recently zero deforestation commitments (Donofrio, Rothrock, & Leonard, 2018; Garrett et al., 2019).

### 3.2 The retraction of biodiversity commitments

Of the companies making environment and biodiversity commitments since 2001, 19 out of 66 had retracted these commitments by 2016, and the status of a further six commitments had become unclear. For the 33 companies making biodiversity-specific commitments in this period, nine out of 33 had retracted these commitments by 2016, with the status of a further six becoming unclear.

Some companies that retracted commitments provided official statements explaining their reasons (examples in Table 3). Other companies retracted their commitments by simply removing any mention of NNL/NPI in their annual/sustainability reports or web pages. In some instances, reasons for commitment retractions could be inferred. For example, Xstrata plc retracted commitments as it underwent a hostile takeover by Glencore in 2013 (Blas, 2013; Xstrata plc Sustainability Report 2010; Xstrata plc Sustainability Report 2011). Four out of the nine companies retracting biodiversity-specific commitments did so after being bought out by other firms. The 20 companies that retracted their environment and biodiversity commitments were from a range of sectors, including mining (43%), energy (19%), manufacturing (5%), food and beverage (5%), and other sectors (entertainment, engineering, infrastructure, transport, and real estate; 29%).

### 3.3 Are biodiversity commitments science-based?

For companies with active biodiversity NNL/NPI commitments as of 2016, we assessed the degree to which commitments met criteria for science-based framing and implementation (Tables 1 and S3). Assessments were conducted on public disclosures of biodiversity commitments and activities made in 2016 annual or sustainability reports for 17 companies. Out of the 17 companies that were included in this analysis, seven companies (41%) specified a component of biodiversity in their commitments or text associated with their commitments, 16 companies (94%) specified a component of biodiversity in their activities, 13 companies (76%) mentioned the management of direct, indirect or cumulative impacts, 15 companies (88%) quantified their commitments or activities, eight companies (47%) specified a reference scenario against which their commitment was made, eight companies (47%) mentioned the use of the mitigation hierarchy, five companies (29%) specified an upper limit, and nine companies (53%) specified a time frame (examples in Table 4). None of the companies’ biodiversity commitments and associated text met all eight science-based criteria. As found by Rainey et al. (2015), mining companies on average satisfied proportionately more criteria than those of other sectors, with 71% meeting 5–7 out of 8 of the criteria and the remaining 29% meeting 3–4 out of 8 criteria. Overall, nine companies
satisfied 5–7 criteria, with five of those being from the mining sector and the remaining four being from the energy, building materials, and real estate sectors. The remaining eight companies that satisfied 3–4 criteria were from the building materials, mining, construction, food and beverage, banking and investment, energy, retail, and shipping sectors.

Where the biodiversity component was specified in company commitments or activities, these typically included species (e.g.,

| Company                        | Commitment made                                      | Year made and retracted | Statement supporting retraction                                                                 |
|--------------------------------|------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------------------|
| Rio Tinto                      | “Net positive impact on biodiversity” (Rainey et al., 2015) | Year made: 2006 Year retracted: 2016 | “During 2016 we shifted our aim from achieving a net positive impact (NPI) on biodiversity to effectively minimising our impacts by applying the mitigation hierarchy.” (Rio 2016 Sustainable Development Report, p.46) |
| Barrick Gold Corporation       | “No net loss on biodiversity” (Rainey et al., 2015)    | Year made: 2009 Year retracted: 2016 | “We have determined that a no net loss approach would be difficult to demonstrate at our older, established mine sites, where original baseline data is not always available. Recognizing this limitation, the Biodiversity Standard and our management approach are focused on ways to achieve beneficial outcomes for potentially impacted key biodiversity features at new projects and major expansions of existing properties.” (Barrick Gold Corporation 2016 GRI Content Index, p.50) |
| Solid Energy                   | “Positive net effect on ecosystems” (Rainey et al., 2015) | Year made: 2001 Year retracted: Sometime between 2012 and 2016 | None |
| Xstrata plc                    | “Avoid net losses... of natural habitats, biodiversity” (Rainey et al., 2015) | Year made: 2007 Year retracted: Sometime between 2010 and 2011 (Xstrata plc. Sustainability Report 2010; Xstrata plc. Sustainability Report 2011) | None [underwent a hostile takeover by Glencore in 2013] |
| De Beers Group                 | “No net loss of biodiversity” (Rainey et al., 2015)    | Year made: 2010 Year retracted: Sometime between 2015 and 2016 (De Beers Group Report to Society 2015; De Beers Group Report to Society 2016) | None [bought out by Anglo American in 2011] |
| Inmet Mining Corporation       | “No net loss... of biodiversity” (Rainey et al., 2015) | Year made: 2008 Year retracted: Sometime between 2012 and 2016 | None [underwent takeover by First Quantum in 2013] (First Quantum Minerals Ltd., 2013) |
| BG Group                       | “No net loss of biodiversity” (BG Group Sustainability Report 2013) | Year made: 2013 Year retracted: Between 2013 and 2014 (BG Group Sustainability Report 2013; BG Group Sustainability Report 2014) | None [bought out by Royal Dutch Shell in 2016] |
| Antofagasta                    | “Zero net loss of biodiversity” (Antofagasta plc. Annual Report and Financial Statements 2015) | Year made: 2012 Year retracted: Sometime between 2015 and 2016 (Antofagasta plc. Annual Report and Financial Statements 2015; Antofagasta plc. Annual Report and Financial Statements 2016) | None |
| AngloGold Ashanti              | “no net loss of biodiversity ... net positive impact on biodiversity” (AngloGold Ashanti Sustainable Development Report 2015) | Year made: 2014 Year retracted: Between 2015 and 2016 (AngloGold Ashanti Sustainable Development Report 2015; AngloGold Ashanti Sustainable Development Report 2016) | None |

Note. Company sustainability reports before and after the retraction are cited as evidence of the retraction, and public statements made relating to the retraction of commitments are also provided when available.
TABLE 4  Examples of disclosures that satisfied the science-based criteria

| Assessment criteria | Example disclosure |
|---------------------|--------------------|
| Is the biodiversity scope defined? | “Together with Manthorpe, our supplier, the RSPB, and Action for Swifts we designed an integral, hidden ‘swift brick’ nest box, to be built into our developments to support declining swift populations. Our £25,000 investment substantially reduces the unit cost for the whole sector.” (Barratt Sustainability Report 2016, p23) “This management approach of the impact on biodiversity is particularly relevant for hydropower plants located in areas of conservation interest, given their level of endemism and the existence of endangered species.” (Energias de Portugal Group Annual Report 2016, p101) |
| Is the impact scope defined (mentioning direct, indirect, or cumulative impacts)? | “We managed in 2016 to rehabilitate an area that was bigger than the area mined, excluding area used for new tailings dams and other necessary infrastructure that year. Of the 181 hectares (ha) made available for rehabilitation, we rehabilitated 180 ha. Still, we did not reach the communicated 2016 target of 325 ha rehabilitated.” (Hydro Annual Report 2016, p99) “To track and demonstrate our net positive impacts, we develop a “ledger” to account for negative and positive impacts on biodiversity. We reduce our impacts on biodiversity through avoidance, minimization and rehabilitation... Implementing our biodiversity mitigation hierarchy also requires the consideration of cumulative effects to ecosystems caused by other parties’ past, present and reasonably foreseeable future activities. We plan and implement protective or restorative actions based on our potential contributions to cumulative effects, and we adjust our actions based on the results of ongoing monitoring and scientific studies.” (Teck Resources 2016 Sustainability Report, p125) |
| Is the commitment measurable (i.e., the commitment or activity is quantified, and a reference scenario is defined)? | “… this has included the rehabilitation of approximately 260 hectares of land in 2016, thereby reducing our overall footprint by decreasing total land disturbed by our mines by over 1% this year. Total disturbed land was reduced by 45 hectares, the equivalent of rehabilitating an area greater than 60 football pitches.” (Randgold Resources Ltd. Sustainability Report 2016, p60) “... Protected more than 1 million acres – an area comparable in size to Grand Canyon National Park” (Walmart Global Responsibility Report 2016, p86) “… Develop thorough biodiversity baselines to provide the foundation for no net loss accounting” (Newmont Mining Corporation. Our 2016 Social and Environmental Performance, p116) |
| Is the mitigation hierarchy used? | “Sites with key biodiversity values specific to the area must have BAPs that satisfy the Mitigation Hierarchy, which is a widely accepted approach for biodiversity conservation.” (Newmont Mining Corporation. Our 2016 Social and Environmental Performance, p115) “Our dedicated Biodiversity policy and management standard advice how disruption to wildlife should be avoided, minimized or compensated for, from project scoping to site closure and beyond.” (Vedanta Annual Report 2015–2016, p76) |
| Is an upper limit specified? | “As a member of the ICMM [International Council on Mining and Metals], we are committed to not explore or develop in UNESCO World Heritage sites.” (Teck Resources 2016 Sustainability Report, p123) “Based on our biodiversity policy we avoid [investing in] activities that have a major adverse impact on biodiversity, such as fossil fuels, mining, unsustainable fishery and agriculture.” (ASN Sustainable Banking Report 2016, p25) |
| Is the time frame specified? | “We want to demonstrate a global positive change on biodiversity by 2030” (LafargeHolcim Sustainability Report 2016, p35) “By 2020: Seek to create a net positive impact on biodiversity and ecology across our development portfolio.” (Barratt Sustainability Report 2016, p7) |

endangered species or ecosystems (e.g., forests, wildlife habitat, native vegetation, and high biodiversity value areas; Table 4). When companies mentioned the management of impacts, these were commonly in reference to direct impacts (e.g., mine rehabilitation) or indirect impacts (e.g., impacts from urbanization driven by operations); only one company mentioned cumulative impacts (e.g., effects caused by other parties’ past, present, and future activities). If companies quantified their commitments or activities, they often used area-based metrics (e.g., hectares rehabilitated and acres protected), as well as individual counts (e.g., number of individuals relocated). When companies disclosed a reference scenario, a static baseline was normally mentioned (e.g., developing a biodiversity baseline at the project site). When the mitigation hierarchy was mentioned, the framework was either referred to in its entirety or by its individual components (e.g., avoid, minimize, restore/rehabilitate, and offset). Where companies stated an upper limit to their activities, they mostly referred to areas that they would not operate in (e.g., UNESCO World Heritage Sites), and occasionally activities that they would avoid (e.g., investing in fossil fuels). Finally, when companies specified a time frame, these were almost always referring to a future date by which a commitment or objective would be completed.

3.4  Case studies

Table 5 compares companies with varying performances in science-based criteria and commitment retraction. Of note, Rio Tinto, a company that retracted its NPI commitment in 2016, stating that it was
not always possible* to achieve, also would have scored poorly against the science-based criteria. As this is an examination of just one company, a possible area for further study could be to investigate any correlation between company commitment retractions and performance against science-based criteria.

4 | DISCUSSION

Business interest in setting NNL and NPI commitments for the environment and biodiversity has continued, and grown, because the first corporate NNL biodiversity commitment was made in 2001. Between 2001 and 2016, 33 companies had made commitments to achieve NNL or NPI for biodiversity, out of 66 companies which made broader commitments to achieve NNL or NPI for the environment. Although we have witnessed the number of companies making commitments for biodiversity steadily rise over the last two decades, during this time, nine company commitments for biodiversity were retracted, with evidence of only 18 companies having active commitments in 2016. Our study provides the first documented evidence of these retractions and reveals a fragility of corporate biodiversity commitments (Table 3).

NNL and NPI are powerful concepts, particularly when applied at operations or site levels (BBOP, 2012; Bull et al., 2013; Hardner, Gullison, Anstee, & Meyer, 2015). If developed appropriately, they have the potential to change corporate practice, contribute to reaching national and international biodiversity targets, and support positive outcomes for biodiversity (Aima et al., 2015; Forum for the Future, 2015; Rainey et al., 2015). Our analysis aligns with other research showing that businesses are taking notice of, and making public commitments for biodiversity (Addison, Bull, & Milner-Gulland, 2018; Adler et al., 2017; Boiral, 2016). However, this uptake remains confined to a very small set of businesses, and very limited even in relation to other corporate environmental commitments. Commitments are also not yet framed and implemented in a robustly science-based way. Below we discuss these two critical challenges for mainstreaming biodiversity considerations in the private sector and recommend steps to genuinely embed biodiversity into corporate decision-making.

4.1 | Challenge 1: Limited corporate-level traction for biodiversity within the private sector

Although it is encouraging that there has been a steady rise in the number of companies making NNL/NPI biodiversity commitments, the up-take remains low when compared with other corporate environmental commitments. In 2016, 41 companies had active corporate NNL and NPI commitments to biodiversity and/or the environment. This is still far less than the number of companies addressing more prominent environmental issues, such as deforestation and climate change. The number of companies that have made zero deforestation-type commitments (e.g., through commodity certification or action to achieve zero deforestation) has grown to more than 400 over a similar time horizon (n.b., forest commitments were included in our analysis only when commitments were made for NNL or NPI [emphasis on “net”] for the environment more generally or biodiversity associated with forests; Donofrio et al., 2018). Similarly, far more companies are making climate commitments through emissions reduction targets: in 2017, 168 of the world’s largest 250 companies had climate commitments (KPMG, 2017).

Retractions and uncertainty in status of NNL and NPI biodiversity commitments add more nuance to the story of biodiversity accountability and has revealed a fragility in corporate biodiversity commitments. From 2011 to 2016, 19 out of 66 companies (29%) retracted their environment and biodiversity commitments (Table 3). Some of these companies, such as Rio Tinto, retained a commitment to manage impacts to biodiversity but have set less clear-cut commitments such as “minimizing impacts” at the corporate level. Other companies have been implementing activities at the cutting edge of NNL/NPI practices, only to abandon the commitments following a takeover. Over half of the companies retracting commitments were from high-risk biodiversity sectors, such as mining and energy, suggesting that even for companies where biodiversity risk should be more prominent and recognized in materiality assessments, the value of addressing this risk through corporate commitments and disclosed activities in sustainability reports is still not a key driver.

Poorly framed commitments can be hard to implement, potentially leading to a perception of failure and a desire to backtrack on NNL/NPI commitments and try something new. Similarly, commitments, which are hard to measure, may not be valued during a buy-out, again leading to their abandonment by the merged company. Revised commitments appear to focus on site-level management and the minimization of impacts rather than a more ambitious NNL/NPI commitment. A focus on site-level biodiversity management has logic, as biodiversity is a local issue, which should be managed at the site level. However, this is a component of, not an alternative to, corporate-level commitments. Retraction of commitments gives the impression that corporates are backing away from public accountability for their biodiversity impacts and dependencies, and this is concerning.

The relatively slow uptake of NNL/NPI biodiversity commitments, alongside ongoing retraction of commitments, might stem from challenges in setting realistic, achievable biodiversity commitments that resonate with internal business decision-makers, and with the shareholder and stakeholder audience of sustainability reports. Commitments like zero deforestation or carbon emission targets seem easier to understand and address issues that appear more frequently in materiality assessments and corporate reporting than biodiversity does. One challenge is that biodiversity is still not viewed as a material risk by most businesses, as the gradual loss of biodiversity and the risk this poses are not necessarily visible or well quantified enough to feature prominently in most materiality assessments (Addison & Bull, 2018; Dempsey et al., 2013). Another factor to consider is the difficulty in measuring the outcomes of biodiversity conservation activities. The inherent complexity of biodiversity makes measuring aspects of it relatively difficult for corporations, compared with other sustainability issues such as greenhouse gas emissions, for example.
TABLE 5 An in-depth comparison of three company case studies, differing in their performance against science-based criteria and in their ability to retain their commitments over time

| Company       | Commitment year | Sector | Specified components of biodiversity | Mention of direct, indirect, or cumulative impacts. | Use of quantitative measures | Stated reference scenario | Mention of mitigation Hierarchy | Specified upper limit | Specified time frame |
|---------------|-----------------|--------|--------------------------------------|---------------------------------------------------|-----------------------------|--------------------------|-------------------------------|------------------------|----------------------|
| Teck Resources| 2010            | Mining | Do not specify biodiversity components in their NPI commitment itself, but do specify a component in their activities: mention the use of native vegetation species in land reclamation. | Mention activities to address their direct, indirect, and cumulative impacts. | Include quantitative measures such as ‘hectares of land reclaimed’. | State a reference scenario against which their NPI commitment takes place: mention the development of a biodiversity baseline, and the restoration of lands to the ‘natural ecosystem types that existed pre-mining’. | Explicitly mention the use of the mitigation hierarchy. | Specify an upper limit beyond which operations are not conducted which, in this case, involves avoiding areas that are UNESCO World Heritage Sites. | Specify a time frame: aim to achieve their commitment by 2030. |
| Barratt       | 2014            | Construction | Do not specify components in their NPI commitment itself, but do specify a component in their activities: mention ‘habitats’ and ‘swifts’. | Do not specify how their activities address direct, indirect, or cumulative activities. | Include quantitative measures: the percentage of their developments with Biodiversity Action Plans. | Do not mention a reference scenario or baseline. | Do not mention the use of the mitigation hierarchy. | Do not specify an upper limit. | Specify a time frame: aim to achieve their commitment by 2020. |
| Rio Tinto     | 2004            | Mining | Do not specify components of biodiversity addressed in their NPI commitment. They do however provide case studies of project-level case studies. | Only mention addressing direct impacts, such as rerouting a haul road. | Include quantitative measures: the number of their sites with Biodiversity Action Plans. | Do not mention a baseline or reference scenario in their overarching commitment and activity text. However, within their project-level case study on conserving | Explicitly mention the use of the Mitigation Hierarchy. | Do not specify an upper limit or areas they avoid for projects. | Do not specify a time frame for their commitment. |

(Continues)
Thus, companies may be hesitant to publicly commit to NPI/NNL, if they cannot easily demonstrate progress towards such commitments. Therefore, more specific goals focusing on single issues such as zero deforestation may appear more attractive to corporations as they can be measured using more targeted metrics such as “hectares of forested land.” In order to make biodiversity commitments more meaningful and easy to take action and report against, we recommend companies break these commitments down into more manageable issues (or sub-goals), which relate to ecosystems (e.g., forests, oceans, and agricultural landscapes) or species (e.g., threatened species or diversity of species within an ecosystem).

The majority (81%) of companies making biodiversity commitments belong to high-risk sectors like mining, energy, and construction. For these companies the business case for making biodiversity commitments and undertaking actions to mitigate biodiversity impacts are relatively clear—these companies must manage business risks. They are amongst the more heavily regulated industries and must maintain access to land, capital, markets, relations with regulators, investors, and customers (Dempsey, 2013; F&C, 2004). Far fewer (19%) of companies that made commitments to biodiversity were from medium risk sectors like the finance sector (which includes insurance, banks, and investment firms).

The finance sector represents companies that can have an indirect impact on biodiversity, through financing companies and projects with direct impacts. Approximately 90 financial institutions are signatories to the Equator Principles, which impose investment requirements to minimize impacts on biodiversity in line with the International Finance Corporation’s Performance Standard 6 (Equator Principles, 2018). However, virtually none of these companies has made corporate-level commitments reflecting the importance of biodiversity in their lending requirements. This suggests that far fewer companies in medium risk sectors currently recognize the potential risk that biodiversity poses to them (e.g., incurred through upstream impacts and dependencies). Alternatively, these companies are not willing to make corporate commitments to address impacts beyond the scope of their direct operations (unlike companies that report carbon emissions against the Greenhouse Gas Protocol scopes two and three, which account for indirect impacts; WRI and WBCSD, 2015). Despite the guidance developed to support businesses in understanding their impacts and dependencies on biodiversity (e.g., WBCSD, 1997; World Resources Institute, 2012), more work is needed to help businesses identify the true risk that biodiversity declines pose to their business (Addison & Bull, 2018).

### 4.2 Challenge 2: Limited advancement in science-based framing and implementation of biodiversity commitments

The integration of science-based criteria in corporate biodiversity commitments has been suggested by Rainey et al. (2015) as a way to help businesses ensure their effectiveness in both benefiting

### TABLE 5 (Continued)

| Company | Commitment year | Sector | Specified components of biodiversity | Use of quantitative measures | Mention of direct, indirect, or cumulative impacts | Specified upper limit | Stated reference scenario | Specified timeframe | Mention of mitigation Hierarchy | Specified time frame |
|---------|-----------------|--------|-------------------------------------|-----------------------------|--------------------------------------------------|------------------------|-------------------------|-------------------------|------------------------|----------------------|
| Indian vultures; they do mention “monitoring populations to establish a regional baseline.” | 2015 | Mining | Indian vultures, they do mention “monitoring populations to establish a regional baseline.” | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Barratt (satisfied seven out of eight science-based criteria), and Rio Tinto (retracted their commitment in 2016). | 2015 | Construction | Barratt (satisfied seven out of eight science-based criteria), and Rio Tinto (retracted their commitment in 2016). | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Note. The three companies are Teck Resources (satisfied seven out of eight science-based criteria), Barratt (satisfied three out of eight science-based criteria), and Rio Tinto (retracted their commitment in 2016). The case studies are presented in terms of disclosure for each science-based criterion. Note that Rio Tinto was not included in the 17 companies presented in Section 3.3. Analysis for this company was conducted using the same steps detailed in Section 2.3, but, as the company had retracted its commitment in 2016, the company’s 2015 sustainability report was used (Rio Tinto: Sustainable Development 2015). Abbreviations: NPI: net positive impact; UNESCO: United Nations Educational, Scientific, and Cultural Organization. | | | | | | | | | | | |
biodiversity and managing business risk (Table 1). Similarly, calls have been made in the sustainability science community to ensure that corporate commitments and metrics are more science-based, to support transparent, systematic, and quantified assessment of corporate social and environmental performance (Vörösmarty et al., 2018). In 2012, none of the 18 companies with NNL and NPI biodiversity commitments addressed the complete set of science-based criteria (Rainey et al., 2015; Table 1). In 2016, there has been limited advancement of clearly stated, realistic, achievable, science-based corporate biodiversity NNL/NPI commitments. This continues to pose multiple potential consequences to achieving positive outcomes for biodiversity.

Some positive advancements have been made in the application of science-based criteria in biodiversity commitments however, with over half of companies specifying the component(s) of biodiversity that their activities focus on (e.g., endangered species or ecosystems), the impact scope of their commitments (predominantly referring to management of direct impacts), a quantification of their commitments or activities (e.g., quantification of the area of habitat restored), and a time frame associated with their NNL/NPI commitments (Table 4). However, we have seen less advancement in other science-based criteria, with less than half of companies specifying the use of the mitigation hierarchy to guide action to achieve NNL or NPI of biodiversity: an upper limit to their activities (i.e., areas and activities, which will be avoided) or reference scenarios against which their NNL or NPI commitment for biodiversity would be measured against.

Further progress in the development of science-based commitments is needed to ensure that actions will be effective on-the-ground. Our analysis indicates that although most companies understand and make efforts to address direct impacts, measures to mitigate indirect and cumulative impacts are less well developed. This issue is notable as until these issues are addressed, significant impacts to biodiversity are still possible, and efforts to achieve NNL or NPI have the potential to fail (Bull et al., 2013; CSBI and TBC, 2015). A key factor that perhaps distinguishes NNL/NPI from other biodiversity commitment types is the need for a clearly defined reference scenario (Maron et al., 2018). It is concerning, therefore, that only 47% of companies define the reference scenario against which their NNL or NPI commitment for biodiversity would be measured. Reference scenarios can be static baselines (e.g., NNL/NPI is measured relative to the current status of biodiversity) or counterfactual scenarios (i.e., NNL/NPI is measured against a predicted trajectory of biodiversity in the absence of business activities; BBOP, 2018). The selection of the reference scenario can have a significant effect on the prediction of mitigation measures needed to offset business activities to achieve a net benefit for biodiversity, and can result in extremely different outcomes for biodiversity (Bull, Gordon, Law, Suttle, & Milner-Gulland, 2014; Maron et al., 2018). The lack of reference scenarios specified goes against best-practice (BBOP, 2018) and makes it very difficult to establish what the outcomes for biodiversity will be from business commitments and actions, particularly whether these will truly lead to net benefits for biodiversity against a backdrop of global declines in biodiversity.

Most companies continue to fail to measure and demonstrate biodiversity outcomes. Our analysis indicates that for the few companies that provide indicators of success, they are mainly based on reporting on the implementation of activities (e.g., the number of hectares conserved or dollars spent on mitigation activities). The failure to measure outcome or impact measures is a common limitation of current sustainability reporting practices (Addison, Bull, & Milner-Gulland, 2018; de Grosbois, 2012; Vörösmarty et al., 2018). For example, an analysis of 469 zero deforestation-type commitments in 2018 found that only 20% had “clear and actionable commitments to carry out traceability” and therefore actually evaluate whether their commitments are met (Donofrio et al., 2018). The practice of site-level biodiversity mitigation promotes the use of pressure–state–response or driver–pressure–state of the environment–impact–response-type metrics (Hardner et al., 2015; IPIECA, 2016). Without an outcomes focus (i.e., pressure and state of the environment metrics), it is hard to determine clearly whether, or how, businesses are contributing to achieving global biodiversity conservation targets. At worst, the lack of transparency around biodiversity outcomes could be camouflaging or greenwashing unsustainable business practices (Vörösmarty et al., 2018). A robust approach to corporate-level outcome monitoring is now standard practice in other areas of risk management (e.g., health and safety), and given the widely documented business case for biodiversity risk management, this must also become the case for biodiversity.

4.3  Advancing corporate-level NNL/NPI biodiversity commitments

Our analysis, based on companies’ sustainability reports, annual reports, and websites, has revealed a steady, but slow, advancement in the uptake of corporate-level commitments to achieve NNL and NPI for biodiversity over the last two decades. Some argue that sustainability reports do little more than greenwash or hide site-level unsustainable business practices, and others suggest that there is still a vast difference between what companies say in their sustainability reports and actually do for biodiversity in practice (Boiral, 2016; Smith, Paavola, & Holmes, 2018; Vörösmarty et al., 2018). However, we found that companies making NNL and NPI commitments for biodiversity include specific details about the activities they undertake to achieve their commitments. But it remains challenging to establish if and how these commitments and activities are adding up to achieve true NNL or net gain for biodiversity in light of continued global biodiversity declines. To address the challenges revealed through this study, we make the following five recommendations:

1. Improve materiality assessment so that true biodiversity risks are revealed

Biodiversity is still not routinely viewed as a material risk by most businesses, as the gradual loss of biodiversity is not appearing on the radar of most materiality assessments (Addison & Bull, 2018;
Dempsey, 2013). Critical research and new decision-support tools are needed to help businesses identify and quantify the true risk (both in relation to impacts and dependencies on biodiversity) that biodiversity declines pose to their business not only posing direct operational threats but also from regulatory hold ups, financial losses, and damage to reputation.

2. Adopt science-based criteria to deepen corporate biodiversity commitments and action

The full set of science-based criteria outlined in Table 1 represent all of the best-practice elements of translating the theory of achieving NNL and NPI for biodiversity into practice (BBOP, 2018; Bull et al., 2013; Rainey et al., 2015). Thus, until we see companies fully adopting science-based criteria for corporate-level biodiversity commitments, we are unlikely to see robust outcomes for biodiversity demonstrated in line with these intended commitments.

3. Measure biodiversity outcomes of corporate commitments

Businesses must begin to measure the effect their activities are having on biodiversity pressures and biodiversity state. This will allow them to establish whether corporate activities are achieving NNL or net gain for biodiversity and also establish the link between their commitments and international biodiversity goals, such as the Convention on Biological Diversity strategic goals and the Sustainable Development Goals (Smith, Smith, Beagley, & Addison, 2018). However, as mentioned earlier, the difficulty in measuring outcomes for biodiversity resulting from business activities is acknowledged. The high cost of biodiversity measurement may also be an issue, as industry may be wary of making biodiversity commitments because they may have to make large investments to monitor something complex and highly variable and with low precision. Measuring biodiversity outcomes need not rely solely on measuring the state of biodiversity (e.g., habitat condition, species’ abundance, or the diversity of species within an ecosystem); measurements of the reduction of a threat or pressure can also be made (e.g., measuring the extent to which known pressures, such as hunting, on threatened species are being reduced by a company). This follows the logic of measuring pressure-state-response indicators used in conservation (Hardner et al., 2015; IPIECA, 2016). Only measuring pressure does run the risk of making assumptions about the pressure–state relationship and missing potentially critical changes in biodiversity; therefore, companies should be required to understand and measure their impacts on biodiversity state to complement pressure measurements (i.e., as a method of verification, which could require less frequent monitoring than monitoring of the pressure).

Increased regulation on NPI/NNL may also be necessary to change corporate behaviour at a large scale. As this study shows, voluntary commitments as commendable, but are often inadequately applied, only applied by a few companies, and are not applied by all companies in sectors, which have the highest impacts. Regulation would level the playing field and would allow each country to align policy on biodiversity and business with post-2020 targets. This would deliver improved sustainability of development.

4. Translate corporate NNL/NPI commitments to support local action for biodiversity

In order for corporate NNL/NPI to play a genuine part in supporting national or international commitments, it will also be important for the private sector to be clear at what scale NNL or NPI is being achieved. Individual corporate commitments alone will not achieve NNL or NPI at a landscape, national, regional, or global scale. They can only be expected to achieve NNL or NPI at local scales, where mitigation activities for local biodiversity can be implemented (Bull et al., 2013; CSBI and TBC, 2015). Corporate NNL/NPI commitments are thus more appropriately recognized as “NNL/NPI to biodiversity from operations or supply chain induced impacts compared to background trends.” To support the successful development and implementation of these commitments, actions and metrics will need to be piloted and tested for a variety of business contexts (e.g., operations sites, business units, and supply chains; Addison, Carbone, & McCormick, 2018). This will enable companies to understand the challenges, help to set realistic commitments, and build internal support for what may be novel approaches at all levels from the bulldozer to the board room.

5. Aim for NPI

The evolving stance from the biodiversity mitigation scientific community is that commitments to achieve NPI are a more positive step than NNL (BBOP, 2018). This is because it is simply no longer enough to “do no harm,” as pressures exerted on biodiversity are so severe, and the state of biodiversity is declining so rapidly (Mace et al., 2018), and the risk that biodiversity loss poses to businesses is greater than it has ever been before (WEF, 2019). NPI aims to achieve positive outcomes for biodiversity, and go beyond the background levels of declining biodiversity under a business as usual scenario (Bull et al., 2014; Forum for the Future, 2015; Maron et al., 2018). Aiming for NPI instead of NNL is encouraged because of the high risk of failure of NNL due to failure of mitigation activities, stochastic effects, and difficulties in measuring biodiversity precisely. A more ambitious goal of NPI will encourage to aim beyond the status quo. Our study reveals that NPI is yet to be adopted more than NNL commitments within the business community. However, there may be a shift in momentum, as there were a higher proportion of companies making biodiversity NPI commitments between 2011 and 2016, compared with the proportion of companies making biodiversity NPI commitments between 2000 and 2010. Additionally, our study indicates that a higher number of biodiversity commitment retractions were for companies with NNL compared with those with NPI (Table 2). NPI has the potential to achieve far more positive outcomes for biodiversity and help the private sector truly contribute towards the global efforts to halt biodiversity loss.
5 | CONCLUSION

We are now coming to the end of the UN’s decade for biodiversity in 2020. For the fourteenth year in a row, the World Economic Forum has registered biodiversity loss as one of the most critical environmental risks facing business (WEF, 2019), and although the business community have made progress in developing commitments to biodiversity and in taking responsibility for actions to mitigate their impacts, there is still some way to go. In 2020, the international conservation community will be reviewing progress on the achievement of the 2011–2020 biodiversity targets and will be developing a new strategy to halt the loss of biodiversity over the next decade. The post-2020 international biodiversity strategy will be more inclusive and will explicitly engage the private sector (CBD, 2017b). Concerted effort from all sectors is needed to halt and reverse biodiversity loss, and the “biodiversity policy super-year” presents the perfect moment for business to step up through well-framed and implemented commitments to biodiversity NPI.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

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