

**BIG IDEAS WITH BIG POTENTIAL IMPACTS: NARRATIVES AND PERCEPTIONS
OF NATURE-BASED SOLUTIONS ACROSS SCALES OF GOVERNANCE**

by

Marina Stavroula Melanidis

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The following individuals certify that they have read, and recommend to the Faculty of Graduate and Postdoctoral Studies for acceptance, a thesis entitled:

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Examining Committee:

Dr. Shannon Hagerman, Professor, Forest Resources Management, UBC
Supervisor

Dr. Guillaume Peterson St-Laurent, Senior Policy Advisor, Environment and Climate Change Canada
Supervisory Committee Member

Dr. Cecil Konijnendijk, Professor, Forest Resources Management, UBC
Supervisory Committee Member

Dr. Hamish van der Ven, Assistant Professor, Wood Science, UBC
Additional Examiner

Abstract

Despite their intrinsic interlinkages, climate change and biodiversity loss are often treated in siloes. The result is ineffective solutions at best, and adverse impacts for nature, climate, and people at worst. To bridge these gaps and deliver holistic, interdisciplinary solutions, Nature-based Solutions (NbS) have emerged as one approach, rapidly growing in popularity across research, policy, and practice. In this thesis, I examine the narratives and perceptions about NbS, and their implications for diverse actors, at various scales of governance. First, I present a narrative analysis using a discourse coalition approach, based on a document analysis and semi-structured interviews, to characterize the dominant narratives associated with NbS within international climate governance settings. Four key findings emerged: i) there are two core NbS narratives in international climate governance: *Leveraging the power of nature* (the dominant narrative, by NbS proponents) and *Dangerous distraction* (the alternative narrative, by NbS critics); ii) both narratives leverage the ambiguity of NbS to further their own arguments; iii) the discourse coalitions behind each respective narrative demonstrate that the NbS concept is reflecting and reproducing power asymmetries present in global climate governance; and iv) *Dangerous distraction* is rapidly changing the way NbS proponents understand and communicate the concept. Second, I present a case study approach to examine how conservation practitioners within the United States view the NbS concept and how social considerations are incorporated within applied conservation adaptation projects. Based on semi-structured interviews with conservation practitioners, I find that: i) conservation practitioners are increasingly recognizing the value of social considerations in conservation and identify a “tipping point” where the field is ready to embrace a movement towards decolonization; ii) despite this, longstanding structural barriers continue to inhibit the incorporation of social

considerations; and iii) NbS is often understood as inherently interdisciplinary, but could only help foster holistic conservation approaches if its use is accompanied by structural changes. This research highlights the persistent impacts of the dominant, Western worldview on the conservation field of practice and environmental governance. Ultimately, I conclude that a single idea, like NbS, cannot bring about transformative change without paying attention to power, access, and justice.

Lay Summary

“Nature-based Solutions” (NbS) is a concept that is increasingly being featured in research, policy, and practice to address the interconnected challenges of climate change and biodiversity loss. This research explores NbS narratives in global climate governance, and how conservation practitioners across the United States understand NbS. Additionally, I examine how social considerations are incorporated into conservation projects. Using documents and interviews, I find that international organizations, national governments, and corporations argue that NbS are critical to solving global challenges, while local and Indigenous organizations argue that NbS are being greenwashed and must be rejected. I also find that conservation practitioners are increasingly recognizing the importance of social considerations, but structural barriers limit their incorporation. NbS could support interdisciplinary conservation models, but only if those structural limitations are addressed. Ultimately, I argue that the NbS concept cannot support transformative change for interconnected environmental challenges without paying attention to power and justice.

Preface

This thesis is my original, independent work. I identified the research questions, designed the methodologies, collected and analyzed the data, and wrote all four chapters. I received academic guidance, in addition to insight and feedback from my supervisory committee at each step of the process. Advisors who provided significant support and feedback have been (and will be) included as co-authors in publication

A version of Chapter 2 has been tentatively accepted with minor revisions as a research article, with myself as lead author and Dr. Shannon Hagerman as co-author. A version of Chapter 3 will be submitted as a research article with myself as lead author and my research supervisors and other advisors who provided key support and feedback will be included as co-authors. The journal is to be determined.

The fieldwork reported in Chapter 2 and 3 was covered by the UBC Behavioral Research Ethics Board Certificate Number H20-01545.

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List of Abbreviations

Ac	Academia
CBD	United Nations Convention on Biological Diversity
COP 25	United Nations Climate Change Conference (25 th Conference of the Parties)
COP 26	United Nations Climate Change Conference (26 th Conference of the Parties)
Gov	National Government
IETA	International Emissions Trading Association
IGO	International Governmental Organization
IPBES	The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPCC	The Intergovernmental Panel on Climate Change
IPLC	Indigenous Peoples and Local Communities
IPO	Indigenous Peoples and Local Community Organization
IUCN	International Union for the Conservation of Nature
NbS	Nature-based Solutions
NGO	Non-Governmental Organization
REDD+	Reduce Emissions from Deforestation and forest Degradation
UNFCCC	United Nations Framework Convention on Climate Change
UNSG CAS	United Nations Secretary General's Climate Action Summit
WCS	Wildlife Conservation Society

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Chapter 1: Introduction

1.1 Problem Context

In the face of unprecedented climate change (IPCC, 2018) and biodiversity loss (IPBES, 2019), conservationists are seeking approaches to address both challenges simultaneously, while also meeting human wellbeing and development needs. Nature-based Solutions (NbS) have emerged as one such approach. While definitions vary, most include three core shared elements: NbS are solution-based, address societal challenges through nature, and can result in multiple benefits (Cohen-Sacham et al., 2016; European Commission, 2015). Despite keen attention from policymakers, scientists, and practitioners (Hanson, Wickenberg, & Alkan Olsson, 2020) and the potential societal benefits (and risks) of NbS initiatives, there remains very little research into issues relating to their governance. For instance, empirical research, especially from the social sciences, on the ways diverse actors engage in NbS discourses (Osaka, Bellamy, & Castree, 2021), and are engaged in applied NbS research (Hanson et al., 2020) is lacking. In particular, research is needed on the ways diverse forms of knowledge, (Albert et al., 2019; Calliari, Staccione, & Mysiak, 2019), trade-offs (Cohen-Shacham et al., 2019; Eggermont et al., 2015), and participation in decision-making (Kabish et al., 2016; Nesshöver et al., 2017) are integrated into NbS research, policy, and practice. This has left a gap in understanding the complexities of NbS as it is pursued in particular social/political/ecological contexts.

Understanding governance involves paying attention to who is involved in decision-making, whose values are represented, and which types of knowledge are deemed credible to develop solutions (Armitage et al., 2021). More fundamentally, it requires careful examination of the underlying assumptions about the nature of the problem itself (i.e., biodiversity loss and climate

change) in terms of its causes and effects, attribution of responsibility, and the knowledge and values that underpin policy solutions (like NbS). Paying attention to the ‘environmental narratives’ that structure environmental problems matters because they shape understandings of environmental issues from forest degradation (Forsyth and Walker, 2008) to acid rain (Hajer, 1995) and underpin governance responses. With substantial policy momentum at multiple scales of decision making behind it, the NbS concept is likely to continue to shape the policy conversation at the intersections of climate and conservation. Therefore, it is important to better understand the ways narrative aspects of NbS governance are shaping how different groups engage with and participate in decision-making at different scales, and how these differences are expressed by diverse actors in both policy and practice.

1.2 Background

As a policy concept, NbS was first introduced in 2008 by the World Bank (MacKinnon, Sobrevila, & Hickey, 2008). Since then, major international organizations, from the International Union for Conservation of Nature (IUCN) to the European Union (EU), have adopted the term as a guiding approach for addressing the joint climate and biodiversity challenge in their respective work programmes. This research uses the IUCN’s definition of NbS, as it is the most commonly applied across academic and grey literature: “Actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits” (Cohen-Sacham et al., 2016, p. 2). Examples include conserving forests to support climate mitigation/adaptation, biodiversity, and local livelihoods, developing green infrastructure in urban environments to

improve air quality and human wellbeing, and restoring coastal ecosystems to protect communities from flooding and mitigate impacts of sea-level rise (Cohen-Sacham et al., 2016).

The NbS concept relates to and builds upon previous ecosystem-based approaches, including Ecosystem-based Adaptation (EbA), ecological restoration, green infrastructure, and ecosystem-based disaster risk reduction (Cohen-Sacham et al., 2019). ‘Conservation adaptation’, a term that describes the strategies behind adjusting biodiversity and ecosystem conservation to facilitate adaptation to climate change (Stein et al., 2013), could also be related to NbS. NbS is often considered an umbrella term that can include these other concepts within its broad definition (Pauleit et al., 2017). What makes NbS different from previous concepts is how it is particularly focused on policy and the integration of environmental goals with solutions to other social and economic challenges (Cohen-Sacham et al., 2019). It has been rapidly adopted by the scientific community and within the policies and work programmes of both government and non-government institutions over the last decade (Seddon et al., 2021), and will likely continue to be featured prominently as a key link between climate change, conservation, and development in policy.

Proponents of NbS note its capacity to be multifunctional by delivering benefits for society and the environment together (Calliari, et al., 2019). NbS has the potential to facilitate policy that is solutions focused (Morecroft et al., 2019), to encourage interdisciplinary thinking (Nesshöver et al., 2017) and multi-actor collaboration (Albert et al., 2019), and to overcome sectoral barriers (Kabish et al., 2016). It has specifically been framed as a pathway towards bridging the gaps between climate and biodiversity discussion and action (Cohen-Shacham et al., 2019; Pettorelli

et al., 2021; Turney, Ausseil, & Broadhurst, 2020), such as by incorporating issues around biodiversity loss into climate initiatives (Seddon et al., 2020b). Non-governmental organizations in particular have advocated for the inclusion of NbS in climate policy and finance (BirdLife International and National Audubon Society, 2015; WWF, 2019). NbS has also become closely associated with transformative change (Woroniecki et al., 2020), with some scholars framing the idea as having potential to contribute to wider transformation across climate and biodiversity research, policy, and practice (IUCN, 2020; Palomo et al., 2021; Seddon et al., 2021; Welden et al., 2021).

However, despite widespread acknowledgement that both social benefits and diverse participation are core components of an NbS approach, key questions related to governance and social outcomes, including examinations of who benefits and who is harmed by NbS (Hanson et al., 2020), and how diverse actors frame the concept (Osaka et al., 2021), are largely missing. Crucial underexamined issues include how costs and benefits of conservation decisions are distributed (Eggermont et al., 2015), how diverse forms of knowledge are considered and validated (Albert et al., 2019; Calliari et al., 2019), how trade-offs are recognized and addressed (Cohen-Shacham et al., 2019; Eggermont et al., 2015), and the role of decision-making processes, including with more or less participation of diverse actors (Kabish et al., 2016; Nesshöver et al., 2017). There is also a lack of empirical studies that examine the implementation of NbS and that critically explore the ways in which diverse actor groups can engage in NbS initiatives, despite the importance of participation for achieving just and effective conservation; meaningful participation models can facilitate the incorporation of a diversity of values and

worldviews (Hakkarainen et al., 2020), promote equity and ensure rights-based approaches (Armitage et al., 2020), and ultimately can foster transformative change (Wyborn et al., 2021).

1.3 Objectives and research questions

The overall aim of this thesis is to examine the narratives and perceptions about NbS, and their implications for diverse actors as they seek to achieve multiple and often contested objectives through conservation at various scales of governance. The following specific objectives and research questions are pursued within this thesis.

Objective 1: Characterize and analyze the range of narratives associated with proposals for (and against) NbS in international environmental governance settings. The following research questions address this objective:

- i. How do different actors (e.g., non-profit organizations, Indigenous communities, international environmental organizations, grassroots activists, industry) view the opportunities, challenges, and risks associated with NbS?
- ii. Which narratives tend to be dominant in climate policy spheres and what does this reveal about participation in the problem definition and knowledge production process?

Objective 2: Examine how conservation practitioners (within the United States) view the concept of NbS, and how social considerations are (or are not) incorporated within applied conservation adaptation projects. The following research questions address this objective:

- i. How are conservation practitioners thinking about and incorporating social considerations into conservation adaptation projects?
- ii. What factors (e.g., partnerships, knowledge) have enabled the incorporation of social considerations in conservation adaptation projects?
- iii. How do conservation practitioners perceive the concept of NbS, and what role could NbS have in incorporating social considerations into conservation projects?

1.4 Conceptual foundations

This research draws from and contributes to three fields of scholarly inquiry: the literature on *Environmental Governance and Narratives* contains the core analytics that inform and ground this thesis; the literature on *Social Considerations for Conservation* provides both the historical context for conservation with a focus on its social impacts, and suggests a set of considerations for achieving more just and inclusive future practice; and the problem-defined literature on the *Climate-Nature Nexus in Conservation* describes the problem space that this thesis engages with and sets up the policy and practice context within which the results of this research can be applied.

1.4.1 Environmental governance and narratives

Governance, in this thesis, refers to the range of formal and informal institutions and processes through which actors make decisions about the environment (Armitage et al., 2012).

Environmental governance includes an emphasis on environmental protection and using institutions and incentives in novel ways to address environmental challenges (Armitage et al., 2012).

Three principal components of governance are particularly relevant for this research. The first includes processes of decision-making and participation. Ideas around how to best design decision-making processes for environmental challenges have shifted over time, from a more conventional, top-down “command and control” style of governance to a growing emphasis on the importance of participatory approaches that involve a range of state and non-state actors (Armitage et al., 2012; Bulkeley and Mol, 2003; Campbell et al., 2010). The complexity of

environmental challenges makes the integration of a diversity of actors, institutions, and perspectives in environmental governance essential (Baird et al., 2019). Active participation and engagement of communities and stakeholders in conservation governance specifically is critical, and even necessary for success (Armitage et al., 2020). Participation of specific actors in environmental governance can identify new pathways for improved management (Shah et al., 2018), diversify the types of knowledge used to guide decision-making (Miller and Wyborn, 2018), and increase the capabilities of institutions to respond to change and address trade-offs (Wyborn et al., 2016). If done with meaningful communication and community buy-in, participation can also strengthen trust among actors and increase the effectiveness of implementation (Mercer et al., 2012; Peterson St-Laurent et al., 2019). That said, if participation models are to be a component of good governance, they cannot simply position communities and stakeholders as a source of knowledge; rather, participation models must facilitate processes where conservation priorities are driven by local needs and values, that promote equity and reconciliation, and result in outcomes that address human wellbeing in ways that are socially, culturally, and economically appropriate (Armitage et al., 2020; Dilling et al., 2019; Heller and Zavaleta, 2009).

The second relevant component of governance is policy instruments. For example, at the global level, key policy instruments are developed within multilateral environmental agreements such as the Strategic Plan for Biodiversity 2011-2020 and the Aichi Targets under the UN Convention on Biological Diversity. While these have significantly influenced the narratives and frameworks surrounding biodiversity conservation at global scales, the effectiveness of these instruments at the localized level have been questioned (Hagerman and Pelai, 2016). On the national scale, and

from a climate governance perspective, Nationally Determined Contributions (NDCs) are policy instruments that outline individual nation states' climate action plans and are central for the implementation of the Paris Agreement (Pauw et al., 2018). Scholars have called for increased transparency, coherence, and implementability within NDCs for them to be effective (Pauw and Klein, 2020). Most governance scholars argue that effectively addressing environmental challenges requires a diversity of governance instruments (regulatory, cooperative, and community-driven) applied at different scales (Armitage et al., 2020). Additionally, across scales and across biodiversity and climate governance, power and politics play a significant role in shaping outcomes. However, the nature of this influence is often not well-emphasised.

The third relevant component of governance includes the types of knowledge that are used to inform decisions. Knowledge informs decision-making and policies, and sources of knowledge can determine whose values, perspectives, and needs are reflected in governance. For example, perspectives of key stakeholders, often considered experts or specialists by those making decisions, play a critical role in determining the nature of policy change (Hagerman et al., 2010). Governance processes that incorporate multiple knowledge systems from a diversity of actors enhance and strengthen resource management decisions (Hagerman and Pelai, 2018). However, this kind of integration or co-production of knowledge is not a simple process. Turnhout et al. (2020) caution that co-production that fails to address elements of power and politics can end up reproducing unequal power relations. Co-production is inevitably power-laden, and these dynamics must be accounted for in order to enable actors to share their knowledges and fully participate in governance processes (Miller and Wyborn, 2018). Relationship-building, a process that requires time, resources, and capacity-building across scales (Múnera and van Kerkhoff,

2019), is necessary in these exercises in order to facilitate active participation, represent a diversity of knowledge-types in governance, and implement conservation strategies that can effectively meet both ecological and social outcomes (Armitage et al., 2020).

All three of these aspects of governance – decision-making and participation processes, policy instruments, and knowledge – are influenced and shaped by environmental narratives.

The role of narratives and discourse in governance has been examined by scholars for decades.

Discourse analysis, for example, investigates how certain problems are represented, how differences are played out, and how social coalitions on specific meanings can emerge that actively shape social and political realities (Hajer, 1995). Hajer (1995, p. 44) defines discourse as the “specific ensemble of ideas, concepts, and categorizations that are produced, reproduced, and transformed in a particular set of practices and through which meaning is given to physical and social realities”. Discourse analysis has been effectively used in the environmental and social sciences to investigate the environmental discussion around particular policies, processes, or concepts of interest, including animal reintroductions in Scotland (Arts, Fischer, and van der Wal, 2012), Reducing Emissions from Deforestation and Forest Degradation (REDD+) strategy development in Tanzania (Rantala and Gregorio, 2014), and ‘Green Jobs’ in British print media (Kouri and Clarke, 2014).

Hajer (1995) also uses the concept of storylines to describe narratives that allow actors to use categories of discourse to give meaning to phenomena – in other words, actors understand discourse through storylines, and they play a role in opening up new positions within the broader discourse for actors to see themselves in. In the environmental and social sciences, approaches

like NbS are inextricably linked with supporting storylines or “narratives”. As summarized by Forsyth and Walker (2008, p. 17), “the term ‘narrative’ has been used to describe succinct summaries of environmental cause and effect that are seen as factual within popular debates or policy networks, but which are essentially based on highly selective participation in problem definition and knowledge production.” Narratives matter in a concrete sense because they are the devices through which threats are understood, and solutions (and stewards of solutions) are defined. Simply put, narratives “reflect and reinforce, different social orders by being based on particular valuations or experiences of environmental change; particular notions of expertise; and particular sets of ideas about which social groups should carry the burden of blame and responsibility” (Forsyth and Walker, 2008, p. 18).

In other words, ideas and their associated narratives actively shapes decisions as they are used by diverse actors to frame both environmental problems and their proposed solutions (Adger et al., 2001; McBeth et al., 2007). Narrative analysis is useful for investigating and emphasising the underlying framing of problems and proposed solutions, like NbS, in order to bring to light the key assumptions embedded in these solutions and the links they have to existing power structures (Forsyth and Walker, 2008). By paying attention to narratives, we can draw attention to the roots of ideas that shape environmental policy, uncover how those ideas came to be, and better understand who these ideas serve and how they may restrict discussion and decision-making in policy and in practice.

Lastly, the impact of governance and the narratives that shape its processes traverse scales.

Powerful environmental narratives, or ideas, that are constructed at the global or national scale

are ultimately enacted locally through environmental policy and subsequent practice. Many dominant ideas in international conservation are rooted in Western worldviews and have had devastating impacts when implemented on the local scale. One example is the idea of “wilderness”, which has shaped the Western conservation movement since its inception (Cronon, 1996; Fletcher et al., 2021). The notion that “pristine” nature without people is a valuable, commendable goal has resulted in conservation models that have contributed to colonial and racist agendas (Domínguez & Luoma, 2020) by forcibly removing people from their traditional and ancestral territories (Barume, 2000; West, Igoe, & Brockington, 2006), discrediting and excluding Indigenous and local knowledge (Cabello & Gilbertson, 2012; Walsh, 2002), fostering the militarization of conservation (Kashwan et al., 2021), and perpetuating other human rights abuses (Colchester, 2004). The notion that nature can be separated from people at all is rooted in colonial worldviews that prioritise Western science above other ways of knowing and forcibly exclude non-Western worldviews and histories from shaping the direction of the global conservation movement (Fletcher et al., 2021).

1.4.2 Social considerations in conservation

Dominant ideas in conservation governance, like “wilderness”, are often spread, if not also designed, on global scales. Their impact, however, is ultimately expressed in particular social-ecological contexts with locally experienced social consequences. This has been the case throughout time. The first national parks across North America were established by white settler conservationists on Indigenous lands, forcing those communities off their territories in the process (Colchester, 2004; West et al., 2006). Dispossession in the name of conservation by European colonial forces took place across Asia and Africa as well (Domínguez & Luoma, 2020;

Garland, 2008; Kashwan, 2017), catalyzing the global conservation movement while simultaneously removing local, rural, and Indigenous communities from their lands, cutting off their access to resources, and significantly impacting their cultures and ways of life. This model of conservation, sometimes called “fortress conservation” or “fences and fines conservation” serves to set aside “wild” natural places for the benefit of a select few, while excluding those who had accessed these lands and resources since time immemorial (Domínguez & Luoma, 2020; Siurua, 2006).

The influence of fortress, or exclusionary, conservation continues today. Recent calls for drastic increases in protected areas, such as the “Half-Earth” proposal that calls for half of the earth’s surface to be protected (Locke, 2014), or the “Global Deal for Nature” which calls for 30% of the planet to be formally protected by 2030 (Dinerstein et al., 2019), have been criticized for the considerable social impacts they could cause to over one billion people (Büscher et al., 2017; Schleicher et al., 2019) and for perpetuating these colonial conservation models that risk land dispossession and human rights violations (Kashwan et al., 2021). Exclusive conservation models have contributed to a rise in militarized conservation where the borders of protected areas are maintained and enforced by armed guards, especially across the African continent (Kashwan et al., 2021). This militarization is often funded by global conservation organizations, including recent revelations of WWF working with and financing antipoaching forces accused of gross human rights violations (Sinclair, 2019; WWF International, 2020).

As described above, the idea of “wilderness” depends on a worldview where people and nature are separate (Cronon, 1996; Fletcher et al., 2021). Rooting mainstream global conservation in

this dichotomous worldview discredits and excludes other ways of knowing (Fletcher et al., 2021), including and especially Indigenous and traditional knowledges where people and nature are closely interlinked, mutually dependent, or even kin (Kimmerer, 2013). It also has enabled neoliberal models, where conservation is governed by economic markets and nature is valued monetarily as “natural capital”, to become a dominant approach to global conservation (Corson, MacDonald, & Neimark, 2013). At the local scale, market-based conservation has in many cases exacerbated social inequities, such as land grabs and violations of land rights for carbon credits in Peru (de Jong, del Castillo Torres, & Salazar, 2014) and loss of access to land for subsistence resources and local livelihoods in Kenya (Chomba et al., 2016), while stirring broader critiques over the commodification of nature (Raftopoulos, 2016).

Additionally, the false separation between people and nature reduces the effectiveness of conservation measures (West et al., 2006). Modern conservation is predominantly rooted in Western natural science and pays insufficient attention to critical human dimensions and social considerations (Bennett et al., 2017a; Mascia et al., 2003) that significantly influence conservation success (Ban et al., 2013; Bennett et al., 2017a; Bennett et al., 2017b; Bennet et al., 2019; Mascia et al., 2003; Sandbrook et al., 2013). Social science is often missing from the design, implementation, and assessment of conservation initiatives (Sievanen, Campbell, & Leslie, 2012), and social scientists are still in the minority (if present at all) within conservation organizations (Bennett et al., 2017a). Global conservation organizations, especially those headquartered in the Global North, are lacking in diversity and are overwhelmingly white (Gould et al., 2018), and non-Western ways of knowing tend to be neglected or limited in the ways they are incorporated within conservation initiatives (Mercer et al., 2012; Turnhout et al., 2020).

Narrowing global conservation practice to only a single group of decision-makers using a single type of knowledge inherently limits the effectiveness of conservation for both nature and for people, missing out on potential benefits for both.

It is well-known that people and nature are interlinked, and that conservation cannot be successful or just without meaningfully accounting for and integrating social considerations (Mascia et al., 2003). The conservation social science field has grown significantly over recent years in recognition of this (Bennett et al., 2017a), yet mainstream conservation remains largely fragmented with social considerations often not integrated meaningfully (Sievanen et al., 2012). The result is a global conservation movement that remains rooted in colonial and racist worldviews, enacting conservation initiatives locally that are not holistic and therefore less effective at addressing interlinked challenges, such as global inequality, poverty, or climate change.

1.4.3 Climate-nature nexus in conservation

Finally, the problem context for this thesis revolves around climate change and biodiversity loss as interlinked challenges. Impacts from climate change exacerbate risks to biodiversity, through changes to and the loss of habitats and ecosystem functioning from rising global temperatures (IPBES, 2019). The loss of biodiversity also exacerbates climate change, such as through increases in the frequency and severity of forest fires, transforming forests from carbon sinks to additional carbon sources and creating positive feedback loops (IPCC, 2019). At the same time, the conservation of biodiversity and the maintenance of ecosystem functioning and resilience play a critical role in both the mitigation of and adaptation to climate change. Over half of all

anthropogenic carbon emissions are stored in land and in the ocean (Pörtner et al., 2021), and scholars have quantified the potential of nature to contribute a further 37% to global climate mitigation targets through avoided emissions and active carbon removals (provided that emissions from fossil fuels are significantly reduced at the same time) (Griscom et al., 2017). Due to the inseparable nature of these two challenges, and the complex ways they interact and feedback on each other, any solution for one challenge that does not take the other fully into account will be less effective (Pörtner et al., 2021; Turney et al., 2020). In the worst cases, addressing one challenge without considering the other could result in adverse impacts for nature, climate, and for people (Pörtner et al., 2021).

Despite this, climate change and biodiversity loss are often treated separately (Pettorelli et al., 2021; Pörtner et al., 2021; Seddon et al., 2020a; Turney et al., 2020). Researchers and scientists are often dedicated to one issue or the other, with some limited overlap. Climate change and biodiversity loss are functionally divided in global environmental governance, each with its own global convention (the UN Framework Convention on Climate Change and the Convention on Biological Diversity) and intergovernmental knowledge-assessment body (the Intergovernmental Panel on Climate Change (IPCC) and the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES)).

Recently, efforts have been made to bridge between the siloes of climate and biodiversity research, policy, and practice. In 2020, the IPCC and IPBES co-sponsored a workshop and produced a joint report to address the synergies and trade-offs between climate and biodiversity interventions (Pörtner et al., 2021), representing the first-ever collaboration between the two

bodies. Conservation organizations have been integrating climate change directly into their programming, such as the Wildlife Conservation Society’s Climate Adaptation Fund which supports conservation initiatives that also directly address climate adaptation (WCS, 2021). Global climate governance in particular has recently seen an increase in the integration of biodiversity, and in nature more broadly, with concepts like “nature-based solutions” gaining in popularity (Seddon et al., 2021), appearing as action tracks within global climate summits like the 2019 UN Secretary General’s Climate Action Summit, and within national climate policy such as Nationally Determined Contributions pledges under the Paris Agreement (Seddon et al., 2020b).

Table 1.1: Summary of conceptual foundations as they inform the objectives and research questions in this thesis.

Chapter	Research questions	Field of Scholarly Inquiry
Chapter 2	How do different actors (e.g., non-profit organizations, Indigenous communities, international environmental organizations, grassroots activists, industry) view the opportunities, challenges, and risks associated with NbS?	Environmental governance and narratives Climate-nature nexus
	Which narratives tend to be dominant in climate policy spheres and what does this reveal about participation in the problem definition and knowledge production process?	Environmental governance and narratives Climate-nature nexus
Chapter 3	How are conservation practitioners thinking about and incorporating social considerations in conservation adaptation projects?	Social considerations in conservation

	What factors (e.g., partnerships, knowledge) have enabled the incorporation of social considerations into conservation adaptation projects?	Social considerations in conservation Environmental governance and narratives
	How do conservation practitioners perceive the concept of NbS, and what role could NbS have in incorporating social considerations into conservation projects?	Social considerations in conservation Environmental governance and narratives

1.5 Methodology

1.5.1 Approach

This thesis uses a qualitative, mixed-methods research design to address the research questions and achieve both thesis objectives. A qualitative research design is appropriate for problems that still need to be explored and to identify variables that are not easily measured, while a mixed-methods design enables the collection of diverse types of data to provide a more complete understanding of a research problem (Creswell, 2013). For these reasons, this is a well-suited approach to examine the narratives and perceptions of NbS, and their implications for diverse actors pursuing conservation across scales of governance. Two methods of data collection were used: 1) a document analysis of public-facing, non-academic literature topically relating to NbS within the context of two events (described in more detail below) and 2) in-depth, semi-structured interviews with conservation practitioners that included primarily open-ended questions, with a few closed ended questions as well. All data was collected and analysed between June 2020 and October 2021. Chapters 2 and 3 are presented as stand-alone manuscripts

(the former has been accepted with minor revisions in Environmental Science and Policy). Each chapter details the specifics of the methodology utilized.

Two case studies – selected to examine processes occurring at both global and national scales (and the interactions between them) - bound the empirical inquiry in this thesis. The lack of empirical studies from the social sciences exploring NbS narratives and perceptions, and their implications diverse actors at multiple scales presents a problem ideally suited for a case study inquiry, which are useful to develop an in-depth understanding of a specific case (Creswell, 2013). Specifically, a multi-scalar framing enables this research to investigate the influence of the NbS concept within the global political arena it was conceptualized within, and in the on-ground context that global governance ultimately aims to impact. This approach also enables a comparison between these two scales that has not yet been made. There are many claims made on global stages about the potential of the NbS concept to influence conservation, but insight into how conservation practitioners themselves are interpreting and implementing the concept (or not) is lacking.

The first case study (and approach for Objective 1) is bounded by two key international climate governance events: the United Nations Secretary General Climate Action Summit (UNSG CAS) of September 2019, and the UNFCCC COP 25 (COP 25) of December 2019. These two events were ideal for examining questions related to NbS narratives for the following reasons: The concept of NbS has largely been stewarded by international organizations such as the IUCN and the EU Commission and much of the discussion around NbS has taken place in an international context. And while the concept first emerged over a decade ago it has only recently gained

significant momentum, largely in preparation for and in response to both focus events (“nature-based solutions” was one of six themes shaping the UNSG CAS, which led in part to a focus on nature and biodiversity during the subsequent COP 25). In other words, the UNSG CAS and COP 25 can both be understood as key temporal milestones for NbS narratives and storylines.

Additionally, international events like these are key moments of time that strongly influence the way actor groups think about these ideas and strengthen environmental narratives and have been used by scholars to analyse the impacts of ideas (Corson et al., 2014; Hagerman, Satterfield, & Dowlatabadi, 2010; Hagerman et al., 2012). For these reasons, focussing on these two specific events is a logical approach to narrow the scope of analysis while ensuring the opportunity to capture insights into the ways that different actors are engaging, or not engaging, with NbS.

The second case study (and approach for Objective 2) centers nationally on the US Wildlife Conservation Society’s (WCS) Climate Adaptation Fund (CAF). From 2011 to 2020, the CAF has funded over 100 biodiversity conservation-focused projects in the United States and its territories that have specifically addressed climate change adaptation (WCS, 2021). Projects in this portfolio were chosen by the WCS to test innovative and science-based methods to help nature adapt to climate impacts. This portfolio of projects represents forward-thinking conservation covering a breadth of ecosystems and ecoregions and is thus well-suited to explore questions relating to the ways conservation practitioners are incorporating social considerations and understanding the concept of NbS.

1.5.2 Validity and positionality

The primary validity threat to this research is my own internal researcher bias (Maxwell, 2013). I have been engaging in NbS policy internationally as an activist and advocate since late 2017. Throughout the process of developing and executing this thesis, I also worked part-time at a global youth-led non-profit organization, Youth4Nature, that I am the founder of. Youth4Nature has been critically engaging in NbS discourses at global and national scales since 2019, including acting as one of the lead delivering organizations of the first Global Youth Position Statement on NbS, a project I had a significant role in developing and executing. As founder, I am personally invested in the organization's success as a credible youth voice working at the intersections of nature, climate, and justice. My positionality has enabled me to build relationships with actors who are deeply engaged in both NbS research and implementation, from a diversity of perspectives, and to develop my own reputation as someone with global expertise in NbS as a youth activist but also as a scholar – I co-authored a perspective paper discussing the impact of framing on the transformative potential of the NbS concept during the writing of this thesis (Welden et al., 2021). My positionality has also been beneficial in the conceptualization of this thesis and in enabling access to NbS experts to engage with within Chapter 2.

My positionality has also shaped the way experts engage with me. As the knowledge developed from interviews is often relational and conversational (Brinkmann & Kvale, 2015), it was critical to understand how interviewees perceived me (Maxwell, 2013). I employed several strategies to address and mitigate this threat. The interview guides for both Chapter 2 and 3 were extensively piloted with members of my research team, and invitation letters that explicitly outlined my

objective to be neither for, nor against NbS approaches sought transparency. I endeavored to speak to experts from a range of backgrounds and perspectives within Chapter 2 and sought respondent validation by providing interviewees with draft findings to ensure I represented their views accurately. Lastly, I intentionally reflected upon my own positionality and its influence on my research throughout the entire process of writing this thesis (Sultana, 2007). I include some of these reflections in the conclusion.

It is also important to note that this thesis has taken place during a time of significant and intense global, socio-political disruption and change. The COVID-19 pandemic erupted as this thesis was being designed, and like everything else it was not immune to its impacts. COVID-19 impacted the way I conducted interviews (virtually, rather than in-person as was originally planned for Chapter 3), and induced a change in the scope, objective, and research questions for Chapter 3. COVID-19 also influenced the work that we asked interviewees about, especially within Chapter 3, and therefore likely impacted the results in ways that may not be fully clear for some time. This impact is lightly touched on within Chapter 3.

1.5.3 Research ethics

This research was conducted with approval from the UBC Behavioral Research Ethics Board to ensure free, prior, and informed consent, confidentiality, and proper data storage procedures. No information that can be used to identify specific individuals was included in this thesis. All interviewees were notified if their quotes were used prior to publishing. Participant consent forms, as well as interview schedules, can be found in the Appendices.

1.6 Thesis organization

This thesis contains four chapters, including the introduction chapter presented here. Chapter 2 examines and characterizes the narratives shaping the NbS discourse within international climate governance through a document analysis and expert interviews. Chapter 3 then explores how conservation practitioners involved in conservation adaptation projects across the United States and its territories currently view NbS, how they are incorporating social considerations into their work, and whether NbS can help foster a greater recognition of social considerations into conservation. Chapters 2 and 3 are written as individual research papers with each containing specific details on the methods, data, and analysis. Chapter 4 provides the conclusion and overarching synthesis of this research including the key contributions, limitations, and future directions.

Chapter 2: Competing narratives of nature-based solutions: Leveraging the power of nature or dangerous distraction?

2.1 Summary

Nature-based Solutions (NbS) are increasingly proposed in international environmental governance settings to address the interlinked crises of climate change, biodiversity loss, and growing inequality. Thus far, scholarly research on NbS has been largely conceptual, and empirical research from the social sciences is widely absent, as are insights into the narratives that surround them. Using the 2019 United Nations Climate Action Summit and the 2019 United Nations Climate Change Conference (COP 25) as a case study, this Chapter sets out to analyze the range of narratives associated with proposals for (and against) NbS. This research uses a discourse coalition approach, drawing data from a systematic document analysis of public-facing texts from a range of actors, and expert interviews. Results reveal two central and opposing NbS narratives: 1) Leveraging the power of nature—NbS are multifunctional, powerful, and must play a critical role in addressing global challenges, especially climate change (held by NbS proponents); and 2) Dangerous distraction—NbS are being co-opted to continue with what is seen as the unsustainable, unjust, status-quo (held by NbS critics). Both narratives make use of the ambiguity of NbS, though in contrasting ways, and their respective coalitions reflect and reproduce existing fault-lines in international environmental governance. The findings indicate that, despite its promise, ‘NbS’ is currently unable to foster inclusive participation and support transformative change.

2.2 Introduction

It is widely recognized that climate change (IPCC, 2018) and biodiversity loss (IPBES, 2019) cannot be addressed independently, or without addressing inequality (Pörtner et al., 2021).

Nature-based Solutions (NbS) have emerged as an increasingly popular approach to address these interconnected challenges, particularly in international climate and biodiversity policy fora such as the UN Framework Convention on Climate Change (UNFCCC) and the UN Convention on Biological Diversity (CBD) (Seddon et al., 2021). While NbS does not have a universally agreed or legal definition, the definition proposed by the International Union for the Conservation of Nature (IUCN) is the most commonly used: “Actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits” (Cohen-Sacham et al., 2016).

As NbS are rapidly adopted, including within the policies and work programmes of government and non-government institutions (Seddon et al., 2021), they have simultaneously become closely associated with the idea of ‘transformative change’ (Woroniecki et al., 2020). NbS are often framed as having potential to be transformative themselves (Calliari et al, 2019; Frantzeskaki, 2019) or to contribute to transformation (IUCN, 2020; Nesshöver et al., 2017; Seddon et al., 2021; Welden et al., 2021), and recent research provides some evidence that NbS contributes to transformative change within social-ecological systems (Palomo et al., 2021).

With substantial policy momentum at multiple scales of decision making behind it, NbS can be expected to continue to shape the policy conversation in global environmental decision-making.

Thus far, scholarly research on NbS has been largely conceptual, either offering principles and frameworks for implementation and/or assessment (Albert et al., 2019; Calliari et al., 2019; Cohen-Shacham et al., 2019; Eggermont et al., 2015; IUCN, 2020; Nesshöver et al., 2017; Raymond et al., 2017; Seddon et al., 2021; Welden et al., 2021), or reviews of the concept's origins and use (Ferreira et al., 2020; Hanson et al., 2020; Kabisch et al., 2016; Osaka et al., 2021; Pauleit et al., 2017; Seddon et al., 2020; Seddon et al., 2021). Despite the concept's policy salience and implications for people and nature, empirical research from the social sciences is widely absent (Hanson et al., 2020).

In particular, NbS, like other policy approaches before it, are usefully understood as inextricably linked with supporting storylines or “narratives”. As summarized by Forsyth and Walker (2008: 17), “the term ‘narrative’ has been used to describe succinct summaries of environmental cause and effect that are seen as factual within popular debates or policy networks, but which are essentially based on highly selective participation in problem definition and knowledge production.” Narratives do political work and matter in concrete ways. They are the devices through which threats are understood, and solutions (and stewards of solutions) are defined. Since narratives are rooted in particular value systems, ways of knowing, and worldviews, they tend to reflect and reinforce power dynamics (Forsyth and Walker, 2008). They also function to shape the inclusion (or not) of different forms of knowledges in policy and in practice (Adger et al., 2001; Feindt and Oels, 2005; McBeth et al., 2007). Narrative analysis as applied to other environmental policies, processes, or concepts includes animal reintroductions in Scotland (Arts et al., 2012), Reducing Emissions from Deforestation and Forest Degradation (REDD+) strategy development in Tanzania (Rantala and Gregorio, 2014), ‘Green Jobs’ in British print media

(Kouri and Clarke, 2014), and ‘Circular Economies’ in Norway (Ortega Alvarado et al., 2021).

These studies show how narratives influence policy and practice, often with critical implications for participation in decision-making and knowledge production.

The aim of this Chapter is to characterize and analyze the narratives associated with proposals for (and against) NbS in international environmental governance settings – specifically, international climate governance. We address two questions: (1) How do different actors view the opportunities, challenges, and risks associated with NbS?; and (2) Which narratives tend to be dominant in climate policy spheres and what does this reveal about participation in the problem definition and knowledge production process?

2.3 Methodology

2.3.1 Approach and data collection

We apply a discourse coalition approach to examine narratives of NbS. Discourse coalitions are ensembles of actors that contribute to and advance specific storylines and engage in practices to further these storylines (Hajer, 1995). They are not necessarily based on common interests or goals but are instead bound together by storylines (or, narratives) and play out across a variety of mediums and with a range of actors. Considering the rapid uptake of the concept of NbS in international environmental governance fora, an examination of narratives in these realms is timely and necessary to make visible the key assumptions embedded in these solutions as well as their links to existing power structures (Forsyth and Walker, 2008).

This paper used a combination of document analysis (Coffey, 2014) and interviews (Schensul et al., 1999) focusing on a diverse range of actors and two key international climate events. While previous NbS studies have conducted systematic reviews of the scholarly literature so as to develop principles for the concept's use, implementation, and assessment, our aim is entirely different, and thus so too is our approach. Following a discourse coalition approach (Hajer, 1995) and responding to a need to examine NbS discourses outside the literature where much NbS commentary occurs (Osaka et al., 2021), we look beyond the scholarly literature to instead examine the views of different actors (including but not limited to scientists/academics) who are engaging in policy spheres in diverse ways (e.g., through policy documents, press releases, online articles, blogs, etc.).

We centered our inquiry on two key international climate governance events: the United Nations Secretary General Climate Action Summit (UNSG CAS) of September 2019, and the UNFCCC COP 25 (COP 25) of December 2019. Both events can both be understood as key temporal milestones for NbS. Much of the discussion around NbS has taken place in an international context, especially in association with climate change. And while the concept first emerged over a decade ago it has only recently gained significant momentum, largely in preparation for and in response to these focus events (“nature-based solutions” was one of six themes shaping the UNSG CAS, which in part led to a large focus on nature and biodiversity during COP 25). Bounding our research within these two international events also allowed us to capitalize on two concentrated moments in environmental governance where NbS debates were central, and where multiple actors were involved. We acknowledge that including a broader range of events, over

longer time periods would yield additional insights. We interpret our findings with these limits in mind.

Documents analysed (n = 35) included non-academic, grey literature available online (e.g., press-releases, reports, op-eds, statements and blog posts, etc.) and met the following criteria: topically related to NbS (i.e., included as least some mention of ‘nature-based solutions’ and/or ‘natural climate solutions’ – the latter was included as it’s commonly used interchangeably with NbS), authored by an organization or network of organizations/authors that represent more than one individual, and explicitly written either in preparation for, during, or in response to the UNSG CAS and/or COP 25. Documents excluded from analysis included those written in a language other than English, media reports (i.e., authored by journalists who are representing news and/or media organizations), scientific literature, and social media posts.

Documents were obtained through searches of online databases (i.e., Google searches) and reference sections of key documents, per “the snowball method” (Tong et al., 2016). Initial keywords used to aid the search included both ‘nature-based solutions’ and ‘natural climate solutions.’ When perspectives of key actor groups were missing from the documents collected using these keywords, a targeted search was conducted – ‘nature-based solutions + Indigenous’ was one example of these targeted searches (see Figure 2.1 for our data collection framework). Document collection was considered complete once new insights gained from each new document reached saturation (see Appendix B for a list of documents analyzed).

Additionally, we conducted semi-structured interviews with individuals who have expertise in the NbS field (n = 10). For the purposes of this study, we defined ‘expertise’ as having direct experience working within research, policy, or practice that is explicitly engaging with NbS, and/or have publicly spoken/written about NbS, and who have engaged actively with NbS during the UNSG CAS and/or COP 25 (see Table 2.1). We intentionally sought individuals from a range of perspectives (e.g., both ‘insider’ and ‘outsider’ views, to reflect dominant narratives as well as contestation). The first author conducted all interviews.

Figure 2.1: Data collection and analysis framework in response to Objective 1

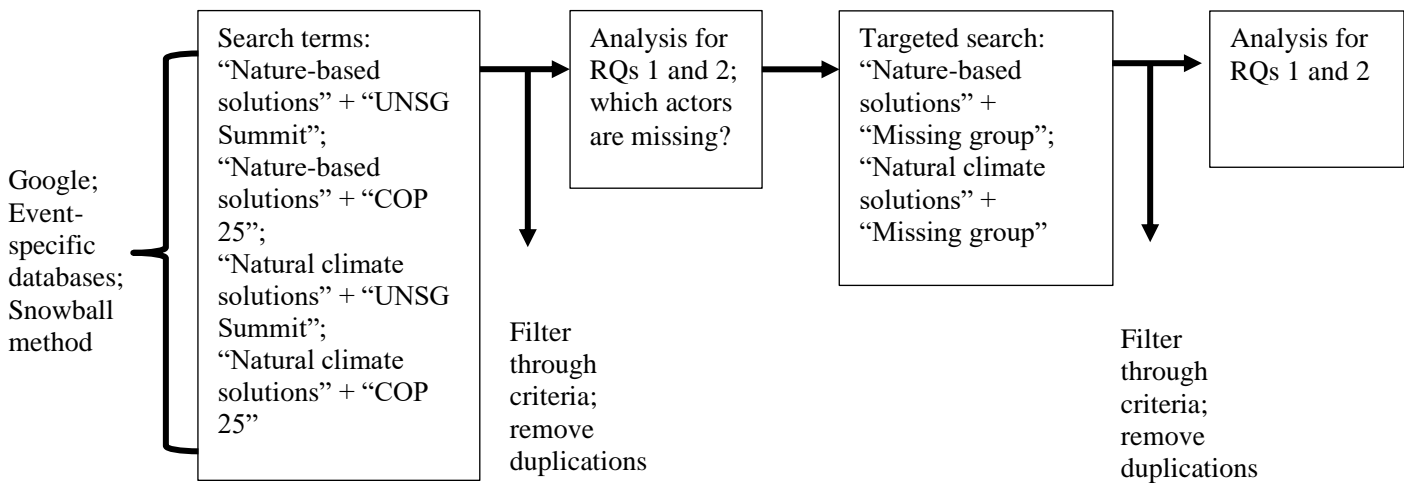


Table 2.1: Interviewee actor groups and identifier code

Actor Group	Identifier Code	Number of Individuals Interviewed
Academia	Ac	2
National Government	Gov	1
Non-Governmental Organization	NGO	2
Indigenous Peoples and Local Community Organization	IPO	1
International Governmental Organization	IGO	3
Youth Organization	Youth	1

2.3.2 Analysis

The full text of all documents and interviews (134 pages of verbatim interview transcripts) was coded within NVivo 12 (version 12.6.1). Coding was guided by an initial set of concepts central to characterizing environmental narratives (e.g., what threats are presented, who is identified as needing to respond to those threats, whose knowledge is featured, and who is participating in decision-making), and proceeded in an iterative process that remained open to themes that emerged from the data (Charmaz, 2006). We also analysed how these indicators overlapped across documents and actors, paying close attention to which specific aspects of narratives are fostering the development of coalitions across different groups of actors, if any. Documents were also coded for overall valence towards NbS. Each document was assigned to one of four categories this way: Enthusiastic proponent (documents that overwhelmingly focus on the potential benefit with minimal or no discussion of pitfalls), cautious supporter (documents that are in favour of the approach but also identify some potential pitfalls), tentatively opposed (documents that oppose the approach but also identify some potential benefits), and staunch critic (documents that fundamentally oppose the approach on various grounds). Overall valence towards NbS also determined which narrative a document aligned with.

2.4 Results

Our analysis identified two main NbS narratives in the context of international climate governance: 1) Leveraging the power of nature—NbS are multifunctional, powerful, and must play a critical role in addressing global challenges, especially climate change (held by NbS proponents); and 2) Dangerous distraction—NbS are being co-opted as means to continue with what is seen as the unsustainable, unjust, status-quo (held by NbS critics). Below we describe the

central features of each narrative and the coalitions building around them (see Table 2.2 for a side-by-side comparison and Appendix A for further evidence). We find that actors advancing both narratives capitalize on and employ ambiguity to justify the varied solutions implicated by each narrative.

2.4.1 Leveraging the Power of Nature

In this pro-NbS narrative, proponents, primarily international organizations, large non-governmental organizations (NGOs), and the private sector, argue that nature is critical to addressing global challenges, especially climate change, if substantial funding can be made available. The majority (83%) of documents analyzed aligned with *Leveraging the power of nature*, with documents coded as being either enthusiastically (23/35 documents), or cautiously (6/35 documents) supportive of NbS. All documents by national governments (3), international organizations (6), and the private sector (6) aligned with this narrative. By contrast, only half (5/10) of the documents produced by civil society groups that are grassroots and/or explicitly justice-orientated aligned with this narrative.

Five central elements define this narrative: (1) NbS are critical to addressing climate change, (2) carbon markets play a role in implementing NbS, (3) NbS can connect actor groups across sectors (especially climate and biodiversity), (4) the private sector and Indigenous Peoples and Local Communities (IPLCs) are among the most important NbS stewards, and (5) the ambiguity of NbS is used both implicitly and explicitly.

Not surprisingly, considering the events studied, this narrative is constructed in response to the threat of climate change, positioning NbS as key solutions and emphasising the need for natural,

largely terrestrial, ecosystems to reduce warming to below 1.5°C. Nature, in this narrative, is frequently framed as a technology or a tool: “nature is a proven, scalable carbon removal technology that’s been refined endlessly over millennia” (WBCSD, 2019).

Adherents to this narrative often reference the widely reported finding of Griscom et al (2017) that identified 20 “conservation, restoration, and improved land management actions”, called “Natural Climate Solutions” (NCS) that could contribute up to 37% of cost-effective CO₂ mitigation needed through 2030 to limit global temperature rise to less than 2°C. This finding is often simplified to ‘nature can provide 37% of climate mitigation by 2030’, or further to ‘one third of mitigation’. The NbS concept is also sometimes used interchangeably with NCS:

... NBS can provide over one-third of the cost-effective climate mitigation needed between now and 2030 to stabilize warming to below 2°C, achieving nature’s mitigation potential of 10-12 gigatons of CO₂ per year (UN Global Compact, 2019).

In addition to policy and legislation (especially, the need to include NbS within Nationally Determined Contributions), carbon markets and offset programs are among the NbS implementation tools most often referenced within *Leveraging the power of nature*. Carbon markets are framed as especially important for engaging the private sector, both to increase private finance and to encourage the private sector to demonstrate climate leadership: “NCS carbon credits should be used as a tool to help companies to demonstrate leadership, and to make additional, near-term contributions towards their climate goals” (WBCSD, 2019).

Not all actors upholding this narrative are enthusiastic about the use of carbon markets to fund NbS:

There's lots of other ways of financing nature-based solutions, and we should be financing nature-based solutions in those other ways. Not through offsetting. That's not to say that we should just... turn away all funding that comes from offsetting, but we should only accept funding that's badged as offsetting from those entities that are genuinely phasing out their fossil fuels. (Interview, Ac-8)

Nonetheless, carbon markets are positioned as having at least some role to play in implementing NbS, ranging from crucial to begrudgingly necessary.

Another element of *Leveraging the power of nature* is the claimed potential of NbS to bridge sectors and disciplines, and in doing so, mainstream nature in decision-making:

What I'm excited about the nature-based solutions agenda is that it's brought a broader nature agenda into a much more mainstream discussion with corporations, and I think with more Ministries and governments beyond the Environment Ministries in the last few years ... I think it [NbS] opens up a different conversation and involved more stakeholders than we've had in much of the environment discussion in the last few decades. (Interview, IGO-10)

This narrative often identifies the NbS concept as a link between climate change policy and biodiversity policy, particularly due to its increasing momentum within climate governance spaces like COP 25. Some actors specifically identify the concept as a vehicle to connect the UN climate change and biodiversity conventions.

Proponents of this narrative identify a range of actors critical for NbS, but the two stewards referenced most often are the private sector and IPLCs. The private sector is the most identified across documents aligning with *Leveraging the power of nature* – 12/29 documents supporting

this narrative reference the important role of the private sector for NbS. Private investment into NbS is consistently emphasised, and several adherents to this narrative argue that NbS cannot be implemented to their full potential without it. One interviewee noted how important it was to realize that the “public sector cannot finance all the nature-based solution initiatives and that involvement of private sector is needed” (Interview, Gov-5).

This narrative describes the private sector as NbS innovators and key participators in decision-making: “To achieve a policy environment that releases the potential of NCS, the unified voice of business should be articulated and heard at the highest levels” (WBCSD, 2019).

This stated importance of IPLCs in this narrative requires more scrutiny. On the one hand, IPLCs are consistently highlighted by proponents as critical NbS stewards. As one interviewee explained: “I think what makes nature-based solutions an actual nature-based solution, what counts, is the involvement of local communities” (Interview, Ac-8). Indigenous peoples especially are often emphasised as being “the best custodians” of natural ecosystems (NRDC, 2019).

Several interviewees agreed, emphasising IPLCs as critical: “I would go so far as to say no one is more important than them [IPLCs]” (Interview, IGO-4), or that the “number one nature-based solution would be to support the rights and livelihoods of Indigenous people” (Interview, NGO-2).

On the other hand, some adherents to this narrative point out that IPLCs are limited in their capacity to implement or lead NbS initiatives. One interviewee explains:

I don't think many of those communities [IPLCs] actually have a) the capacity to be in the driver's seat, even if maybe they should be, and b), this is a fundamentally global issue for which, as individual communities we're simply just less likely to be aware of the interconnectivity and the global dimension of this. And so, for that reason I think it's difficult to leave it up to entirely individual bottom-up processes ... I think that we need to empower, we need to, at the very least, have very strong safeguards to make sure we're doing no harm ... [but] the extent to which local communities and Indigenous peoples can be in the driver's seat in this process I think will be very dependent upon the location and a variety of other factors (Interview, NGO-3).

The apparent restriction *Leveraging the power of nature* applies to the role of IPLC raises questions, especially in light of claims about 'empowerment':

I think there is an important role here for Indigenous and local communities, but again they need to be empowered to be able to play that role, and the ones who can empower them are usually national governments. But increasingly also the private sector (Interview, IGO-1).

One proposed method to 'empower' IPLCs is to build platforms within existing institutions (such as COP 26) that can facilitate their involvement. Another is to weave traditional knowledge into NbS, alongside Western science. It is, however, reasonable to remain skeptical about the extent to which such proposals can address the deep systemic, structural barriers facing IPLCs within status-quo decision-making.

The final element of this narrative concerns how proponents use ambiguity in implicit and explicit ways. Proponents often implicitly capitalize on ambiguity by highlighting selective

aspects of this narrative. For example, while one interviewee frames NbS as “centered on ecosystems and their contribution towards global societal challenges” (Interview, IGO-4), which aligns closely to the definition proposed by the IUCN, most documents position NbS as climate solutions, first and foremost. Some proponents highlight the role of carbon markets as tools, or even as critical enablers, for NbS implementation. In a press release about the International Emissions Trading Association’s (IETA) “Markets for Natural Climate Solutions” initiative, launched at COP 25, IETA quotes David Hone, the Chief Climate Change Adviser for Shell, saying:

Natural climate solutions are scalable now and offer significant opportunity for carbon dioxide removal. For this to happen, the world needs a widely recognised robust market to channel capital to nature-based projects, while ensuring the highest standards of carbon accounting (IETA, 2019).

In this way, ambiguity allows NbS to be many different things to different actors.

When ambiguity is discussed explicitly, it is often done in marketing terms:

It’s [NbS] about being with, by, and for people, you know, it’s not just conservation in disguise, this is about bringing together poverty, biodiversity conservation, and climate change mitigation and adaptation. And that’s why it is a powerful concept, because it has the potential to do that (Interview, Ac-8).

Further, the ability of NbS to resonate with actors across sectors makes it a strong branding tool:

... nature-based solutions as a term is of course also a branding opportunity more than anything ... what differentiates nature-based solutions as a way of, as a slogan, from other things that we’ve tried in the past to save, sustainably use, and restore nature, is the positive angle because we need nature to come to our aid and to help us solve this deep

crisis that we're in ... The approach is much more, it's much more human-centric if you want than previous approaches but for some reason that has generated a lot more enthusiasm for nature (Interview, IGO-1).

For some proponents of this narrative, ambiguity comes with risks: “What I fear is that the amorphous nature of what we actually mean when we talk about [NbS] is going to become a hindrance” (Interview, IGO-10). But in general, such concerns are not presented as unsolvable. According to NbS proponents, not only can these concerns be addressed, but doing so is worthwhile because the concept is so powerful. One interviewee expressed a need to “reclaim” NbS and to “get this right”:

...needing to reclaim the concept ... is really, really important ... the work we have to do is make the concept good because it is a powerful one ... I'm keen that we try and get the next weeks and months and years, we try and get this right (Interview, Ac-8).

Strategies commonly suggested to “get this right” include establishing standards, implementing safeguards for biodiversity and for people, and embedding NbS within robust greenhouse gas emission reduction plans. These strategies are emphasized as both critical and feasible:

... we need safeguards. We have to do this in ways which are not going to run roughshod over, not just legal rights, but traditional rights of communities. And that's really important, we have to get that right ... But, we have the tools. We need to deploy them, people need to keep looking over our shoulder, but I'm very optimistic about our ability to do it well (Interview, NGO-3).

2.4.2 Dangerous Distraction

One of the defining differences of the *Dangerous distraction* narrative is who its proponents are. In contrast to *Leveraging the power of nature*, *Dangerous distraction* is often held by local and

Indigenous organizations and grassroots groups who are critical of NbS and warn that the concept is being co-opted, largely by corporations, to continue with what is seen as the unsustainable, unjust, status-quo. In this narrative, NbS are something to be wary of, or rejected outright.

This narrative was much less prevalent in our sample: 3 of 35 documents were characterized as tentatively opposed to NbS with 3 coded to the staunch critic category (17% in total). Authors of these documents are entirely made up of smaller organizations or networks and Indigenous organizations, all of which explicitly identify as “justice orientated”.

Four central elements define this narrative: (1) the problematic association of NbS with carbon markets/offsets, (2) concerns over private sector engagement, (3) risks to human and Indigenous rights, and (4) ambiguity is a fundamental flaw.

While *Leveraging the power of nature* positions NbS as indispensable to addressing climate change, *Dangerous distraction* emphasises the potential negative implications of framing nature as a climate solution. In particular, the association between NbS and carbon offsets/markets is so concerning to adherents of this narrative that NbS becomes a term to be cautious of or avoided entirely. One document links the concept to long-standing critiques of the REDD+ programme which utilizes carbon sequestration within terrestrial ecosystems to offset greenhouse gas emissions elsewhere and could itself be classified as an NbS:

Nature-Based Solutions (some use the term Natural Climate Solutions) are a dangerous distraction from preventing disastrous climate change. One reason for this is that like

REDD, Nature-Based Solutions are promoted as a compensation tool: this means that companies are going to call themselves carbon-neutral even though they keep burning petroleum and coal. All that is required is some investment into reforestation (tree planting), forest restoration or a new Protected Area ... This is what makes Nature-Based-Solutions so attractive to the fossil fuel industry (World Rainforest Movement, 2020).

While both narratives use NbS and NCS almost interchangeably, the conflation between the two terms is much more prevalent for *Dangerous distraction*, especially when critiquing their association with carbon offsets. One document explains:

These so-called solutions [NCS] have been condemned as the commodification of the Earth for the purpose of creating vast quantities of carbon and biodiversity offsets designed to enable climate-destroying business as usual under the pretense of climate action (Biofuelwatch, 2019).

One concern is that offsets through NbS simply do not result in an overall reduction in carbon emissions. Other concerns are directed at the fundamental nature of market-based approaches for addressing climate change. Calling them “false solutions”, one document emphasizes that carbon markets do not reduce emissions and protect neither biodiversity nor people:

... carbon trading is not the way forward. The truth is, these market-based schemes don't reduce emissions but rather are proven pathways to privatising forests, clearing out communities, and destroying biodiversity (Indigenous Climate Action, 2019).

Another element of this narrative is a concern over private sector engagement – specifically that corporations will turn to NbS to avoid costly (and essential) emission reduction measures.

The central argument of this narrative is that corporations will always do what is in their best financial interest and reducing greenhouse gas emissions is often less financially viable than

investing in NbS offsets (which, according to this narrative, do not result in a net reduction of emissions). Therefore, when corporations engage with NbS, especially in a leadership role, they are co-opting the concept to greenwash business-as-usual, whether that be the continued extraction of fossil fuels or the destruction of biodiverse ecosystems. Carbon offsets that take the form of tree-planting, especially planting monoculture plantations, is commonly used to illustrate this concern. In response to IETA's initiative 'Markets for Natural Climate Solutions', one group explains: "essentially, they [the initiative founders] greenwash their activities by planting trees that enables the oil companies to carry on drilling" (Oil Change International, 2019).

One interviewee named this concern the "corporate capture of policymaking." They go on to say:

And that's also where the nature-based solutions goes so wrong, because of course this is all promoted by actors that want more money in their own pockets, pretending to conserve a forest or pretending to green up their industry (Interview, IPO-6).

For many adherents to this narrative, NbS ultimately jeopardize human rights. By pointing to the presence of carbon markets and offsets within *Leveraging the power of nature*, this narrative argues that NbS are tied to a worldview where nature can be commodified, and that this conflicts with the rights of many local communities, especially Indigenous communities:

State governments in the south see market and nature-based solutions as a lucrative revenue stream for their economies and are resistant to any mention of human rights or Indigenous Peoples safeguards that may detract from this ... Even with the inclusion of human and Indigenous rights, market and nature-based solutions are challenging, because they promote putting a monetary value on our lands, territories and biocultural diversity - the sacred - without any means of addressing a history of colonialism, extractivism or predatory capitalism (Indigenous Climate Action, 2019).

Dangerous distraction emphasises that because NbS are often associated with placing a monetary value on natural ecosystems, it excludes other ways of knowing and by extension excludes those communities. The consequences of this exclusion include policies and practices that cause harm to people and disregard human rights, primarily the rights of Indigenous and local communities, such as through the forced removal of communities from their lands (sometimes called a ‘land grab’) in order to utilize it to generate carbon offsets for corporations or governments.

Instead of NbS, actor groups upholding *Dangerous distraction* promote alternative solutions that align with Indigenous values and worldviews, centre meaningful participation, and are rights-based:

The only way to survive the climate crisis will be to root out the capitalist and colonial value systems and make space for Indigenous values and ways of knowing to bring forth meaningful system change (Indigenous Climate Action, 2019).

Lastly, like *Leveraging the power of nature*, this narrative also references ambiguity, but in explicit terms only. Ambiguity is presented as a fundamental flaw that makes NbS vulnerable to co-option, especially by the private sector. As one interviewee explains:

... there’s even reluctance to use the term nature-based solutions because of the potential for greenwashing ... they’re [climate justice organizations] avoiding, if you like, the nature-based solutions language because there’s already fear that it’s been co-opted (Interview, NGO-2).

Ambiguity is framed as a weakness that enables actor groups to use the NbS concept to promote the policies and actions this narrative is concerned about. The lack of a universal definition or

legally determined standards for NbS is often cited here. One document notes that although IUCN’s NbS definition includes “positive rhetoric”, it also “allows for market solutions to rear their ugly heads” (Indigenous Climate Action, 2019). Another notes that NbS can “include activities that do nothing to advance real climate solutions” (ECO/CAN, 2019).

Dangerous distraction adherents argue that the ambiguity of NbS enables practices and policies that put people and biodiversity at risk, including everything from carbon markets to land grabs, and ultimately overshadows any potential of NbS to foster positive change:

... nature-based solutions includes at this moment, the good, the bad, and the evil. We always say, the biggest issue for us is what it could mean, and who will define it, and if it will be defined, and if it will not be defined by international law it means it could still include the good, the bad, and the evil (Interview, IPO-6).

Table 2.2: Key characteristics of the two NbS narratives in global climate governance: Leveraging the Power of Nature and Dangerous Distraction.

	<i>Leveraging the Power of Nature</i>	<i>Dangerous Distraction</i>
<i>Coalition membership</i>	IGOs; National governments; NGOs; Private sector	NGOs; IPOs; grassroots and justice-orientated groups
<i>Overall stance on NbS</i>	Proponents (enthusiastic and cautious supporters)	Critics (tentatively and staunchly opposed)
<i>Prominence within discourse</i>	Dominant narrative	Counter narrative
<i>Commonly proposed pathways forward</i>	Policy and legislation; Carbon offsets and markets; Standards, safeguards, and guidelines; Increased NbS funding	Rights-based approaches; participatory approaches; environmental justice; Indigenous values and worldviews
<i>Identified stewards</i>	Private sector; IPLCs (sometimes with limiting caveats)	IPLCs
<i>Ambiguity</i>	Implicitly and explicitly incorporated; “Branding tool”	Explicitly incorporated; “Fundamental flaw”

2.5 Discussion

The two narratives we identify constitute more than the identification of key elements of current NbS debates – they also reveal how NbS as a concept is shaped by and reinforcing of existing power relations. Below, we argue that ambiguity makes NbS a powerful concept because it can be wielded by a range of actors, including actors with different, or even conflicting, objectives. We also illustrate how both narratives can be understood as emerging from and to some extent reproducing broader legacies of environmental discord. Both of these observations impact the transformative potential of NbS. Lastly, discourses around NbS are changing rapidly, in large part, as actors upholding the *Leveraging the power of nature* narrative seek to respond to critiques from the *Dangerous distraction* narrative.

2.5.1 Ambiguity, boundary objects, and fundamental flaws

Leveraging the power of nature and *Dangerous distraction* both use the ambiguity of NbS to further their own arguments and increase the legitimacy of their proposed solutions. Within *Leveraging the power of nature* some actors implicitly leverage ambiguity by framing NbS in ways that align with and advance their objectives. Core to IETA’s mission statement, for example, is to establish carbon markets (IETA, 2021) and because NbS is ambiguous IETA can use the concept to help further that mission by focusing on how carbon markets can finance NbS initiatives. Organizations that focus on mitigating climate change or biodiversity conservation also leverage NbS to further, and to finance, their agendas.

When NbS proponents point to ambiguity, they position it as an opportunity to ‘market’ NbS and increase funding for nature’s role in solving global challenges. In this way, ambiguity enables the

NbS concept to function like a boundary object (Star and Griesemer, 1989) with the capacity to “bring people in” and build a cross-sectoral coalition of actors centering nature into solution-development for global challenges (Hanson et al., 2020 also associates NbS with boundary objects).

In part, NbS shows some potential to create the new connections between climate and biodiversity that are hoped for in the *Leveraging the power of nature* narrative. The IPBES-IPCC joint workshop report explicitly identifies NbS as a pathway towards integrated climate-biodiversity policy and initiatives (Pörtner et al., 2021). The concept has also been featured in climate policy events like the UNSG CAS and COP 25, within biodiversity policy, including the zero draft of the post-2020 biodiversity framework (CBD, 2020), and was referenced in the G7 2021 Communique as a strategy with co-benefits for climate and nature (G7, 2021).

NbS critics however, position ambiguity as a fundamental flaw that enables co-option and greenwashing and therefore warrants a rejection of NbS entirely. IETA’s ‘Markets for Natural Climate Solutions’ initiative is specifically identified as evidence of this co-option, due to the multinational oil and gas corporations among its founders. NbS critics use its ambiguity to demonstrate that global climate governance is ineffective, unjust, and grounded in status-quo power structures, and to further arguments for governance structures that prioritize rights-based approaches and that reflect knowledges beyond Western scientific and capitalist worldviews.

Ambiguity makes the NbS concept pliable; both proponents and critics can bend it to fit differing agendas in compelling ways. While ambiguity can facilitate engagement across sectors, it can

also lead to ‘misuse’, as NbS critics warn and as other environmental concepts like ‘resilience’ or ‘sustainability’ have demonstrated (Brand and Jax, 2007; Ott et al., 2011). NbS proponents increasingly acknowledge this risk. This was especially evident in the interviews and is further reflected in the recent literature. For instance, Grace et al (2021) identifies ambiguity as limiting NbS implementation in the Mediterranean, Kotsila et al (2020) explores negative consequences of NbS ambiguity, and Seddon et al (2021) attempt to reduce ambiguity by developing guiding principles for NbS policy.

The NbS concept offers a powerful “branding opportunity”. It can and has been used by a diversity of actors, across both narratives, to further specific and distinct agendas. While ambiguity has enabled cross-sectoral connections in some cases, it has also fostered the emergence of an alternative discourse coalition upholding a contrary narrative, throwing its inclusivity into question.

2.5.2 Reflecting and reproducing fault-lines

The *Dangerous distraction* narrative is advanced by a coalition of actors advocating for systemic, transformative change in environmental governance, often through rights-based and participatory approaches, redress, and justice. *Leveraging the power of nature* on the other hand, is promoted by a coalition made up largely (but not entirely) of actors who operate within and thus benefit from the status-quo structure of decision-making. The fact that two, distinct discourse coalitions exist is at odds with the hoped-for potential for NbS to bring people across siloes together, and to support transformative change. The fault lines that these two narratives reflect – separating those that hold status-quo power from those that don’t – are by no means

unique to NbS. Rather, they're the product of broader and deeply engrained power dynamics which determine who can access environmental decision-making and who is excluded. These dynamics hold important implications for the ability of the NbS concept to fulfill the sector-bridging promise proponents prescribe to it.

Leveraging the power of nature itself reinforces these connections to power and the status quo it supports. This narrative assigns an important, but limited role to IPLCs, who are emphasized as partners, rather than leaders, and as groups that need to be 'empowered' through building spaces in existing institutions or by integrating traditional knowledge with Western, scientific knowledge. The limited role imposed on IPLCs aligns with recent research identifying Indigenous and local knowledge as the least common knowledge-type incorporated into NbS initiatives, while the majority incorporates technical and/or scientific knowledge (Palomo et al., 2021). In stark contrast is the private sector, who are depicted as investors, innovators, and even active participants in decision-making. Emphasising private sector leadership while limiting IPLC stewardship reinforces existing power dynamics within global climate governance, where wealthy corporations have significant access to decision-making and local peoples do not. It also fuels concerns over "corporate capture" that underpins much of *Dangerous distraction* and further distances NbS critics.

The ways that *Leveraging the power of nature* use language further reflects these power asymmetries. In particular are the instances where nature is framed as a "technology" or "tool" to solve problems like climate change. Positioning nature as an external "tool" that people can use reinforces the problematic people-nature dichotomy pervasive across Western thought, and

restricts those who hold other ways of knowing from participating fully in the conversation (Welden et al., 2021; Woroniecki et al., 2020).

The dominance of *Leveraging the power of nature* identified in this study is, in part, reflective of a significant imbalance in who participates in the events studied. The UNSG CAS and COP 25 are inaccessible venues for many, especially those who have fewer resources and less capacity such as grassroots movements and IPLCs – the same actors who tend to adhere to the *Dangerous distraction* narrative. Additionally, our focus on climate governance, documents published in English, and the use of Google’s search engine favour the *Leveraging the power of nature* coalition. This suggests that *Leveraging the power of nature* may not be as dominant within wider NbS discourse to the same extent that it is within this study.

That said, bounding the study in this way is justified because it reflects where decisions are being made. Global climate governance spaces, like the UNSG CAS or the UNFCCC COPs, are critical venues for high-level environmental agenda and target setting. They represent key moments where narratives and agendas are actively leveraged to influence environmental agreements, which then play significant roles in shaping environmental policy from the national to the local level. Therefore, the exclusion of certain actor groups from these spaces becomes reflected in the decisions being made and narratives being shaped, and vice versa. In other words, these relations of power are both shaped by, and shape, the narratives that dominate a discourse (Woroniecki et al., 2020).

The tensions described above are playing out in real time. During the most recent UNFCCC COP (COP 26, November 2021), countries debated the inclusion of “nature-based solutions” in the final decision text. While present in an earlier draft, “nature-based solutions” was later removed following interventions by countries including Bolivia that the term perpetuates a false separation between people and nature and negates nature’s intrinsic value. While proponents including Canada and the United Kingdom encouraged the inclusion of NbS in order to strengthen bridges across the global climate and biodiversity agendas, critics warned of risks to human rights and delayed decarbonization. The final text, the Glasgow Climate Pact, does not include “nature-based solutions” and instead includes the wording “protecting, conserving and restoring nature and ecosystems” (UNFCCC, 2021).

The NbS concept emerged from the context of global environmental governance, largely designed by actors who exert power in these spaces and determine how they are structured. Therefore, the dominance of *Leveraging the power of nature* in global climate governance is somewhat expected. It also matters. NbS often emphasise biodiversity and carbon rich natural landscapes, the majority of which are on Indigenous territories. (Artelle et al, 2019; Ogar et al., 2020; Sobrevila, 2008). Therefore, decisions about NbS are likely to greatly impact Indigenous communities, despite being driven by a narrative that does not represent them.

Policies and approaches rooted in collective action and that challenge liberal forms of democracy and markets are important characteristics of transformative change (Scoones, 2016). Therefore, there may be an inherent limitation of ideas like NbS borne out of top-down, Western-centric institutions that are grounded in and perpetuate the status-quo knowledges, worldviews, and

power structures at the root of environmental challenges. Our argument about the ways NbS is reflecting fault lines and reproducing power dynamics is consistent with this perspective. Yet, a growing body of literature suggests that the concept does hold potential to play an important role in the pursuit of transformative change (Calliari et al, 2019; Frantzeskaki, 2019; IUCN, 2020; Nesshöver et al., 2017; Palomo et al., 2021; Pörtner et al., 2021). Some scholars frame the transformative potential of NbS as conditional to certain changes, including actively redefining NbS to align with socio-environmental movements (Kotsila et al., 2020), centering the rights and leadership of Indigenous peoples (Townsend et al., 2020), incorporating non-instrumental values (Randrup et al., 2020), following clear guidelines that reduce ambiguity (Seddon et al., 2021), and explicitly grounding NbS in people-nature interconnectedness (Welden et al., 2021).

We would add to these conditions, by suggesting that NbS, and more accurately NbS proponents, must actively work to overcome the power dynamics *Leveraging the power of nature* reproduces. This might mean that if it remains ambiguous, NbS can be applied in high-level communications contexts, but not as a specific, legal element included in policy.

2.5.3 Rapid Change

Neither of these narratives are static. They are rapidly changing and actively influencing each other in the process. This was particularly evident from the interviews which were conducted approximately a year after most documents were published. What is especially clear is how the *Dangerous distraction* narrative is influencing the *Leveraging the power of nature* narrative. In contrast to the documents, all interviewees spoke about the ambiguity within NbS and recognized, and to some degree agreed with, the critiques underpinning *Dangerous distraction*,

regardless of their individual perspective towards NbS. This suggests that, despite the dominance of *Leveraging the power of nature* in global climate governance spaces in late 2019, the comparatively small *Dangerous distraction* narrative is impacting how NbS proponents communicate and frame the concept, resulting in more caution and nuance within the NbS discourse. The extent to which this nuance is symbolic or substantive, remains to be seen, although the removal of “nature-based solutions” in the final decision text of the Glasgow Climate Pact due to the same arguments core to the *Dangerous distraction* narrative may suggest that this alternative narrative’s influence is only growing.

Shifts towards more critical analysis of NbS are also present in recent research, which emphasises the need for environmental and social safeguards, for caution over carbon offsets as primary NbS funding mechanisms, and to address key concerns raised by IPLCs about NbS finance, governance, and equity (Girardin et al, 2021; Seddon et al, 2021; Pörtner et al., 2021). Additionally, the IUCN recently released its own set of standards to support the design, implementation, and verification of NbS initiatives, in an attempt to directly respond to the “misuse” of the concept that could result in the very risks to both biodiversity and people that the *Dangerous distraction* narrative warns about (IUCN, 2020).

This research focused on characterizing NbS narratives as they appear within global climate governance spaces. Research characterizing NbS narratives within global biodiversity governance spaces would help clarify the bridging potential of NbS. Further empirical research is also needed on whether and how these narratives are expressed within, or help shape, NbS

policy, research, and practice, especially from an equity and justice perspective – studies that examine the ways NbS actions are performing from a justice angle are especially needed.

2.6 Conclusion

NbS is a concept with lofty goals: proponents upholding *Leveraging the power of nature* promote NbS as a powerful idea that can connect across siloes, mainstream nature into decision-making, and ultimately support transformative systems-change. NbS does seem to be connecting across global climate and biodiversity governance. However, the emergence of *Dangerous distraction* reflects existing fault lines and reproduces power dynamics that restrict the participation of historically excluded actors. This suggests that NbS, as the concept is currently being characterized within global climate governance, cannot meet all the goals proponents prescribe to it. If “NbS” is to be able to support transformative change, the criticism *Dangerous distraction* presents must be addressed. This includes a shift in the *Leveraging the power of nature* narrative’s framing of the private sector (especially multinational corporations) away from innovators, funders, and decision-makers, and towards an emphasis on responsibility, accountability, and justice. This would also require a clear prioritization of IPLC leadership and rights-based approaches that align with the needs and values of IPLCs themselves, and that don’t impose limitations or further systemic power imbalances. The NbS discourse is rapidly changing, largely due to the ways *Dangerous distraction* is influencing *Leveraging the power of nature*. Whether this change will result in the level of reckoning *Leveraging the power of nature* needs to foster inclusive participation and support transformative change remains to be determined.

Chapter 3: A “renaissance moment”: social considerations and NbS as (potential) drivers of structural change in the conservation field

3.1 Summary

While the harmful impacts of dichotomous, Western conservation models that separate people from nature and perpetuate human rights abuses globally is well recognized, social considerations are still not being mainstreamed into contemporary conservation policy or practice. At the same time, the increasingly popular concept “Nature-based Solutions” (NbS) has been put forward as a pathway to facilitate more holistic conservation strategies that centre people. Using the Wildlife Conservation Society’s (WCS) Climate Adaptation Fund (CAF) as a case study, this Chapter sets out to examine how conservation practitioners within the United States view the concept of NbS, and how social considerations are (or are not) incorporated within applied conservation adaptation projects. Drawing data from 28 semi-structured interviews with conservation practitioners representing 15 different conservation projects, results reveal how practitioners are increasingly recognizing the value of social considerations in conservation and are increasingly willing to address the racist and colonial roots of Western conservation, identifying a tipping point for broader, fundamental change. However, persistent structural barriers remain to fully integrating social considerations, such as funding availability and grant designs. NbS could help support movement towards more holistic, interdisciplinary conservation models, but only if its popularity represents not just a change in terminology, but also structural change in conservation worldviews, models, and strategies.

3.2 Introduction

The field of conservation is in the midst and throes of several key shifts in practice and thinking. One in particular is the apparent shift away from a dichotomous model that separates people from nature, towards models that emphasize community-based and rights-based approaches (Armitage et al., 2020; Stevens, 2014), diverse knowledge systems and the critical links between culture and nature (Díaz et al., 2018), and the importance of genuine consultation and power-sharing, especially with local and Indigenous communities (Artelle et al., 2019; ICCA Consortium, 2021; Fletcher et al., 2021). This shift has emerged on the heels of recognition of how conventional, dichotomous conservation models (such as fortress conservation) have shaped the Western conservation movement since its inception (Cronon, 1996; Fletcher et al., 2021), the worldviews and practices of which has dominated and shaped mainstream conservation strategies and approaches globally (Domínguez & Luoma, 2020).

The social impacts of conventional, or Western, conservation is also being increasingly acknowledged, including how Western conservation is shaped by colonial and racist worldviews (Fletcher et al., 2021; Kashwan et al. 2021) that have served to justify actions including the dispossession of land and forced removal from traditional territories and resources (Griffin et al., 2019; Stevens, 2014; West, 2006), the militarization of conservation (Kashwan et al., 2021), and other human rights abuses (Dowie, 2009). The need to fundamentally incorporate elements of justice within all elements of the conservation field is well recognized within the literature (Martin et al., 2016). Justice, specifically environmental justice, tends to have three key elements: distribution (the assignment of rights, benefits, costs, and responsibilities across actors), procedure (the structure of decision-making and participation), and recognition (the

acknowledgement, respect, value, and agency given to different cultures, histories, and identities in both interpersonal and public discourse and practice) (Martin et al., 2016; Schlosberg et al., 2004; Sikor et al., 2014).

In contrast to these dichotomous models, people and nature have been thriving together for centuries, in regenerative and reciprocal relationships (Bridgewater & Rotherham, 2019; Kimmerer, 2013). Additionally, integrating social considerations, such as cultural or political factors, into conservation approaches is seen by many as a necessary condition for conservation to be successful (Sandbrook et al., 2013) by inspiring increased support for conservation projects (Bennett et al., 2019) and improving the likelihood of achieving long-term, effective ecological and social outcomes (Ban et al., 2013; Blicharska et al., 2016; Mascia et al., 2003; Oldekop et al., 2016). Yet, despite this growing understanding of the importance of social considerations for conservation to be effective, they are still not being mainstreamed into contemporary conservation policy or practice (Ban et al., 2013; Bennett et al., 2017a; Bennett et al., 2017b; Christie et al., 2017; Hagerman & Pelai, 2016; Liu et al., 2007).

Another shift in conservation is the growing role of the concept of “nature-based solutions” (NbS). NbS does not have a universally agreed upon or legal definition, but the IUCN’s definition is the most used: “Actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits” (Cohen-Sacham et al., 2016: 2). NbS has emerged as an increasingly popular approach to address the dual crises of climate change and biodiversity loss, while also addressing social considerations such as inequality (Seddon et al.,

2021). A growing body of literature suggests that the NbS concept has the potential to either deliver transformative change directly, (Calliari et al, 2019; Frantzeskaki, 2019; Palomo et al., 2021) or indirectly contribute to the pursuit of transformative change (IUCN, 2020; Nesshöver et al., 2017; Pörtner et al., 2021; Seddon et al., 2021). For some, NbS is seen in prescriptive terms as a boundary object (Hanson et al., 2020), with the ability to bring together diverse actors, foster partnerships, and facilitate more holistic and interdisciplinary conservation solutions that centre people. However, others explain that NbS can only meet this potential if the concept is explicitly grounded in the interconnectedness of people and nature (Welden et al., 2021) or if NbS shifts away from a solutions-orientated framing entirely and instead embraces a more holistic and inclusive way of relating to nature (Randrup et al., 2020). Still others reject the term entirely due to its vulnerability to greenwashing (Melanidis and Hagerman, 2022). Despite its proposed potential to link people and nature in conservation policy and practice, there is an absence of empirical data on NbS from the social sciences (Hanson et al. 2020), especially as it relates to how those carrying out conservation on-the-ground understand the concept and its role in the field.

Understanding how conservation practitioners themselves view changes within their field is a critical step towards understanding the current state of conservation, including what is working, what needs to be improved, and how those improvements can be made. The views of conservation practitioners provide insight into the social, cultural, political, and economic processes that shape the conservation field, while also helping practitioners to better understand themselves and the broader context within which they work (Sandbrook et al., 2013; Sandbrook et al., 2019).

The aim of this Chapter is to examine how conservation practitioners within the United States view the concept of NbS, and how social considerations are (or are not) incorporated into applied conservation adaptation projects. ‘Conservation adaptation’ is used here to describe the strategies and theories behind adjusting biodiversity and ecosystem conservation to facilitate adaptation to climate change. It is one of the many terms that fall under the umbrella of NbS. The potential for NbS to act as a boundary object and emphasise the linkages between people and nature, in addition to its growing popularity in conservation policy and practice, make it a key angle from which to view the larger question of social considerations within conservation, particularly as a concept that could foster a greater recognition of social considerations. ‘Social considerations’ in this study can be understood as aspects, factors, and/or contexts related to socio-economic, political, cultural, and/or spiritual dynamics that impact human wellbeing. These considerations have also been called social impacts or human dimensions, or even simply social science, within the literature (Ban et al., 2013; Bennett et al., 2017b; West et al., 2006). We intentionally use a broad definition as a starting point so as to capture the full range of how conservation practitioners view and apply considerations that could be seen as ‘social’ into their conservation work.

We address three questions: (1) How are conservation practitioners thinking about and incorporating social considerations into conservation adaptation projects?; (2) What factors (e.g., partnerships, knowledge) have enabled the incorporation of social considerations in conservation adaptation projects?; and (3) How do conservation practitioners perceive the concept of NbS, and

what role could NbS have in incorporating social considerations into conservation adaptation projects?

3.3 Methodology

3.3.1 Approach and data collection

We used a case study approach and focussed our inquiry on the Wildlife Conservation Society's (WCS) Climate Adaptation Fund (CAF). From 2011 to 2020, the CAF has funded over 100 biodiversity conservation-focused projects in the United States that have specifically addressed climate change adaptation (WCS, 2021). Projects in this portfolio span a wide range of ecosystems and ecoregions, from grasslands to forests, urban areas to deserts to coasts, and include activities ranging from prescribed burns, re-establishing sand dunes, and floodplain restoration. This case is well suited for this study because of the range and diversity of projects it includes, and the innovative nature of the projects that have been selectively chosen to test ground-breaking, science-based methods to help nature adapt to climate impacts. These projects represent a selection of forward-thinking conservation, making the portfolio fit to explore how conservation practitioners incorporate social considerations and understand NbS.

This study is based on data from semi-structured interviews (Schensul et al., 1999) with 28 practitioners actively involved in implementing projects funded by the CAF. We used purposeful sampling (Creswell, 2013) to guide the selection of interviewees according to the following criteria: at the project level, we included only those projects funded in the two most recent years at the time data was collected (2018 and 2019), so as to increase the likelihood that respondents were able to meaningfully recollect details of the design and implementation process. Two

exceptions were included (one project from 2017, another from 2016) as this data was collected before an iterative re-structure of the study design. Within that frame, the principal investigators (PIs) of each WCS CAF grant were invited to be interviewed. We combined this approach with snowball sampling (Tong et al., 2016) by asking interviewees to recommend others who had relevant knowledge of the conservation project, meaning they were involved in the design and/or implementation, resulting in interviewees representing staff or executives of the lead organization for the project, project partners, and project advisors working in conservation organizations, universities, and federal government institutions. With this approach, some of the 15 projects in our sample have one interview associated with them, while some have up to four. The first author conducted all interviews online by Zoom as the global COVID-19 pandemic made travel and face-to-face interviews difficult. Interviews ranged in duration from 50-80 minutes. They were recorded and transcribed, with prior consent from the respondents. Respondents were offered a modest honorarium (CAD\$100).

Interviews focussed on a range of topics including the types of social considerations (if any) that were incorporated into the project goals, the rationales for these considerations, and views about the importance of social considerations in conservation more generally. Given the salience and profile of conversations relating to NbS as discussed above, we also asked respondents about their understanding of NbS and their views on the potential of NbS in conservation more broadly. Finally, we asked respondents to identify whether or not the importance of social considerations among conservation practitioners will change in the future using a 6-point continuous interval scale from “will become much less important” to “will become much more important” (three respondents did not answer this question due to time restrictions and early

changes to the interview schedule). To preserve confidentiality, respondents were assigned a code, also used for results reporting.

3.3.2 Analysis

The full text of all interviews (400 pages and 213,996 words of verbatim interview transcripts) was coded within NVivo (version 12.6.1). The first round of coding was partially guided by an a priori set of themes relating to the research questions (i.e., social considerations, enablers and barriers, NbS), and proceeded in an iterative process that paid close attention to thematic areas of similarity as well as difference that emerged from the data (Charmaz, 2006). The initial codes were reviewed and verified by two additional researchers, leading to the second round of coding which further examined emergent themes. Emergent themes included types of social considerations, motivations and rationales, and recommendations for conservation in the future, to further explore them in greater detail.

3.4 Results

Our analysis reveals three key aspects for understanding how conservation practitioners think about and are seeking to address social considerations across a range of conservation projects. First, practitioners in our study hold diverse and wide-ranging views about what constitutes ‘social considerations’ with most respondents highlighting relational benefits or relationships and collaboration. Second, and connected to this, while multiple rationales were identified for including social considerations in conservation projects, engendering greater public support emerged as particularly important. Third, many respondents noted that projects that involved practitioners with backgrounds in social science and worldviews/values that prioritize justice,

and projects that take place in contexts with obvious links to human communities, were much more likely to enable social considerations.

Lastly, most respondents understood NbS as incorporating people in some way, and as having a growing role in conservation. The overriding recommendation emerging from within both conversations – those about social considerations in conservation more broadly and NbS specifically – is the need for a systemic shift in dominant, Western conservation models and approaches, across both structural (i.e., how conservation is funded and the make-up of the organizations that implement it) and individual dimensions (i.e., the values, backgrounds, and worldviews of practitioners themselves).

3.4.1 How do conservation practitioners perceive social considerations?

Respondents identified a range of social considerations when reflecting on their conservation projects. However, we found that they could be generally grouped into four categories: 1) relational benefits, 2) collaboration and community engagement, 3) outreach and education, and 4) social and institutional benefits (Table 3.1). Social considerations related to collaboration and community engagement were the only type that were explicitly reported to be integrated into the design of conservation projects.

Table 3.1: Summary of the range of social considerations respondents (n=28) identified throughout the interview process.

<i>Social consideration category</i>	<i>Examples</i>	<i>Reference frequency</i>	<i>Evidence</i>
<i>Relational benefits</i>	Connecting people with nature: includes aesthetic or existence values, recreation, reducing barriers to accessing nature, fostering a sense of identity.	19 of 28 respondents (68%)	“... we hope that the social benefit is that we’ll continue to have a forested park in the area. So, people go to this park because it’s got a big forest canopy, and it’s nice and cool, they ride their bikes in there ... the long-term hope is that people will continue to recreate in that area and see it as a forested park that they can visit like, and experience nature in an urban environment.” [I11]
	Health and safety: includes benefits related to both physical health and safety, and mental health and wellbeing of surrounding and affected communities, both from the implementation of the project and as a direct or indirect outcome.	20 of 28 respondents (71%)	“If we are successful in the very long term, then yeah, there would be big social benefits in terms of like, reduced health impacts. For example, from wildfire smoke, or giant dust storms of mega fires ... We’re able to actually show that through improving restoration ... there’ll be tremendous societal benefits.” [I21] “When you offer people and facilitate experiences that are outdoors, that are groups of people working towards a common good, you can build sense of belonging, you can build affinity to the space, so it’s really like at the very core of the philosophy and mission of our volunteer program.” [I10]
	Cultural benefits: including benefits to the maintenance and strengthening of Indigenous cultural values. Note: cultural benefits were especially relevant for projects that were implemented in areas and geographies with very visible connections to Indigenous histories and present communities.	10 of 28 respondents (34%)	“... the second goal was also to interface with the local community in such a way that we not only were preserving the ecological and biological values of the place, but also the historical and cultural values because the area is very rich culturally in terms of Hawaiian traditions.” [I15]

<i>Collaboration and community engagement</i>	Ecosystem services: including broad benefits of biodiversity and ecosystem restoration/conservation to people, such as nutrient cycling, water quality, food security, etc.	10 of 28 respondents (34%)	<i>“I guess there’s a lot of benefits that, um, are just sort of part of having healthy natural spaces, and part of people using natural spaces. And I could kind of like list off a laundry list of those ... sequestration of carbon, minimizing crime and mental health components and air quality and water quality, all these kind of ecosystem benefits.” [I10]</i>
	Collaborative partnerships within the design and implementation of the project: including benefits related to building relationships amongst implementing partners and within surrounding and affected communities.	17 of 28 respondents (61%)	<i>“I think we are really approaching this project [in a very interdisciplinary way] like through our partners. And I think that just has so many great positive social outcomes as well ... kind of anchoring it in both science but also community and social science.” [I19]</i>
	Inspiring interest and positive engagement with the project from the surrounding and affected communities: including volunteer engagement.	17 of 28 respondents (61%)	<i>“I think a great success has just been getting support for prescribed fire in the region and hearing from a lot of different stakeholders and from folks in the region, and how much they’re excited about this project and want to be involved...” [I9]</i>
	Integrating surrounding and affected community members into the conceptualization of the project, as co-leads and co-designers.	8 of 28 respondents (29%)	<i>“We have a horizontal relationship, where I respect their perspectives, and I go to, we are addressing a problem that they know, they were part of the process of identifying methods forward and identifying, I mean the project would not have started were it not for the support of the community leaders. So, they are the leaders.” [I14]</i>
	Note: while partnering with community members as co-leads was one of the least frequently mentioned way of understanding social considerations, these respondents expressed it as being critical to the overall success and longevity of their conservation objectives.		
Engagement with Indigenous communities: including incorporating Indigenous knowledge into the project’s implementation, and working with Indigenous Nations or individuals as partners, volunteers, and/or project staff.	8 of 28 respondents (29%)	<i>“... we’re almost all white except for the Tribal community. And so, having this kind of collaboration and on-the-ground side-by-side working together, I think is a social benefit of breaking down barriers and social isolation, increasing collaboration.” [I6]</i>	

Note: a few respondents noted that engaging with Indigenous communities was either in early stages, or something they hoped to be able to incorporate better in future conservation work.

<i>Outreach and education</i>	Benefits related to communicating the value of conservation and/or the details of the specific project to broad audiences: including through online workshops, conducting tours, producing video content, and educating young people.	16 of 28 respondents (57%)	<p><i>“I think engaging youth certainly is a big part of our efforts to really broaden our education and outreach, knowing that they are in fact the ones inheriting the planet we’re leaving them, and so there’s a number of social ramifications there.” [I4]</i></p> <p><i>“I hope that with the communications materials that we’re creating, that we communicate in a way that is engaging and relatable, you know, not just to the part like the conservation partners that we work with, but also to the general public ...” [I26]</i></p>
<i>Social and institutional benefits</i>	Economic benefits, job creation, and employment opportunities: including hiring contractors to do restoration work, rangeland improvement for farmers, and future economic opportunities from restored landscapes or ecotourism.	16 of 28 respondents (57%)	<p><i>“... its value is also really there in terms of like, ecotourism. So that’s a huge part of our economy down here ... folks come down here to ... spend their money on looking at biodiversity.” [I5]</i></p>
	Institutional benefits: including increased future funding for conservation and the influence of a novel research methodology to conservation practice more broadly.	7 of 28 respondents (25%)	<p><i>“... a key component of this project is that we can amplify how we have changed our practices and how others could change their practices. And if that’s considered a social outcome, then then I would say that that is really a critical component of our work.” [I26]</i></p>

3.4.2 What are the enablers and barriers to integrating social considerations?

Respondents identified a range of enablers and barriers to integrating social considerations that they have already experienced or could imagine confronting.

3.4.2.1 Enablers

Enablers that were more commonly referenced by respondents were personal and situational.

The individual backgrounds and values of the conservation practitioners themselves was the most frequent enabler that respondents spoke to, referenced by 21 of 28 respondents, or 75%:

I have a kind of unique background. I studied psychology and Spanish as an undergraduate, and then I didn't you know, have a more like, natural resources background until graduate school, so, you know thinking about planting trees as being something for people is just sort of my natural standpoint. [I10]

A background in fields beyond ecology or natural resources, especially a background in the social sciences, was referenced by a few respondents when reflecting on enablers to incorporating social considerations into their projects. Lessons from previous conservation work were also relatively common. Broadly however, many respondents emphasised how their own personal values and worldviews were significant enablers for thinking about and incorporating social considerations:

... equity and justice, environmental justice, really tying in public health factors is like, so crucial and ... I think that's like a huge driving force for me ... [I19]

The local context where the conservation work was taking place was also referenced by over half of the respondents (14/26 interviews) as a key enabler for integrating social considerations into

conservation. For example, the cultural history of a specific location, such as Hawaii with its very visible and recent histories of settler colonialism, acted as enablers for some respondents:

... everything in Hawaii is like that. It's very difficult to find any conservation project, except maybe in some very remote mountain areas involving large federal tracks of land or something like that, where the people really aren't sort of there. [I15]

Those doing conservation in urban environments also spoke to the impact of working in areas where people and our values are clearly present and apparent, making it challenging not to integrate social considerations into their work:

... we really can't do projects in communities in an urban setting without thinking about those aspects, without thinking about the social outcomes and how this impacts the communities that we're working in, like it's very integrated. [I17]

Other enablers that respondents spoke to include partnerships and relationship-building (sometimes specifically with partners that have a social science background):

I think like it's just been so much stronger and everything has been possible because it's been done in partnership. And all of the partners that have come together care about these spaces, not just for critters but for people too. [I10]

The mission or structure of the organization leading the conservation project was also referenced as an influential enabler. For example, one respondent noted how human communities are directly featured within their organization's mission statement, which influences how they design their work:

Our mission statement though is cultivating community and stewardship ... And so, obviously fulfilling our mission is our operational goal. [I4]

3.4.2.2 Barriers

In contrast to enablers, which were largely personal and situational, barriers to incorporating social considerations that respondents referred to most often were mostly structural. The most frequently referenced barrier (by 13/28 people, 46%) was grant structures and lack of funding. Specifically, several respondents explained how not all conservation funders are interested in social considerations, which can restrict how much labour conservation practitioners can dedicate to their incorporation:

It's easier to raise money for some small bird that nobody's ever heard of than it is for human beings to take care of that small bird, you know what I'm saying? It's just the kind of the supreme irony to me in some ways of how it works in the funding community ... [115]

One respondent explained how even the ways that grant applications are designed can be a barrier to incorporating social considerations:

... a lot of these fields have character limits? In online, it's real! You know, you have to fit everything you can into a field that has a thousand characters. And so you have to be very, very explicit in terms of how you are defining your goals, and it gets back to those calls for proposals that have very specific goals. And you have to tailor your goals to the funder's goals. [14]

Other respondents explained how it can be challenging to be adaptive and adjust project goals when grants are inflexible, which can limit the ability to bring social considerations into the project throughout its implementation. Short timelines embedded in grant funding can also be restrictive:

But in the timeframe of the grant, it's really difficult ... Because to really have an impact on people, you would have to be working at a scale that we're aiming towards working at, but it's like way outside the purview of a two-year grant. [121]

One respondent noted how short timelines don't always align with the time needed to build meaningful relationships with partners or stakeholders:

... if we waited until all voices were at the table, that timeline might have been a very different timeline than what we had implemented. [I12]

Another respondent explained how funding for ecological objectives versus social considerations are usually provided by entirely different donors, which influences how conservation projects are designed and which are awarded funding:

Generally, the money for restoration projects is coming from restoration funding sources, so that's likely to remain the predominant driver in project-selection over time. You know, social projects are funded from social funding sources, generally. [I6]

Another barrier that was frequently referenced by respondents was a lack of knowledge or capacity, either as individual practitioners or within conservation organizations as a whole, to incorporate social considerations. A lack of social science training was one example that a couple respondents shared:

One of the biggest barriers is figuring out how to do it. It's very pretty to say, oh we need to have more effective community engagement, or respecting tribal or Indigenous or native or local voices, but we are not trained to do that at the universities. [I14]

Conflicting social and ecological goals was another barrier that respondents referenced, as one respondent explained:

... so we quickly found out that some of the sites that would have been most exciting from a social standpoint were not the best from an ecological standpoint. So, we had to re-envision where we would put in this project. [I1]

While the local context of the specific conservation project could be an enabler for incorporating social considerations, it could also be a barrier depending on the specific circumstance. This was commonly referenced by respondents whose conservation work took place in remote locations. However, the impact of the COVID-19 pandemic also acted as a barrier for several respondents, largely due to public health measures like physical distancing which resulted in less community engagement than what was hoped for or planned for:

... in a situation where we didn't have to worry about a contagious virus, we generally do a lot more with the community, like a lot more community outreach. But that has made it impossible for us to do, like, field days with the local community members ... usually we do planting days with volunteers. [I26]

3.4.3 Why do conservation practitioners include (or exclude) social considerations in their projects?

The majority of respondents (19 of 25 respondents, or 76%) think that social considerations of all types will become more important among conservation practitioners in the future. Just under half think they will become *much* more important (Figure 3.1).

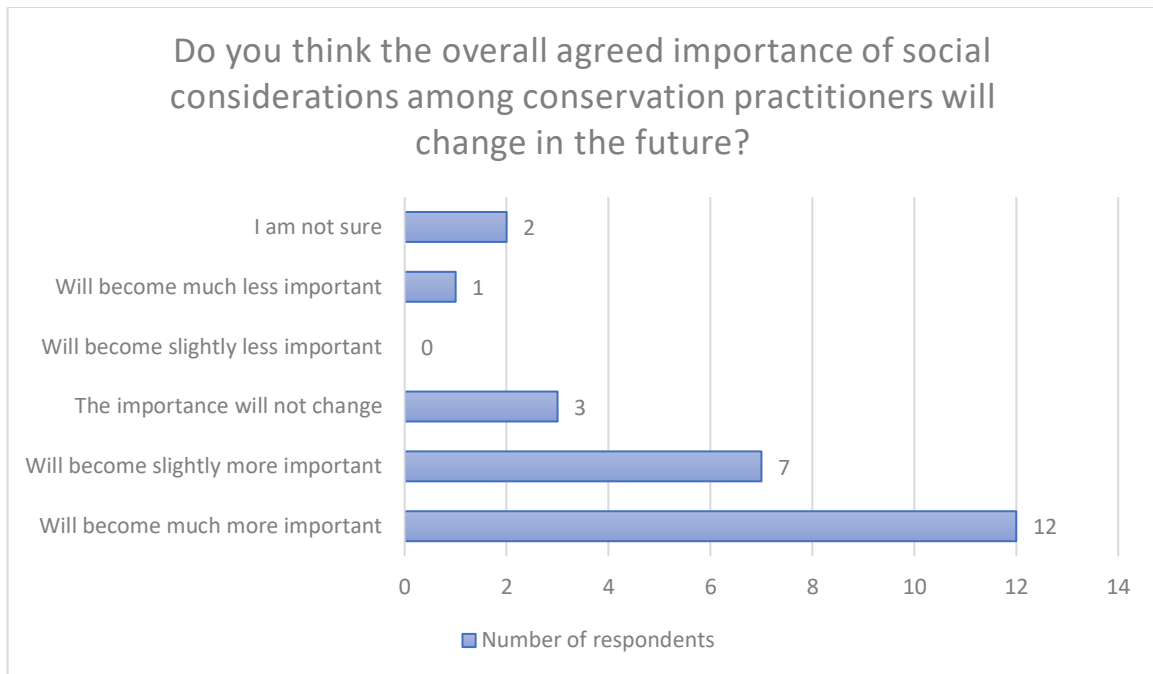


Figure 3.1: Responses to the verbal survey question on how the importance of social considerations will change among conservation practitioners ($n = 25$). Three respondents did not answer the section of questions that this question was grouped within.

Of the respondents that shared their perspective on whether and how the importance of social considerations will change, almost half (12 of 25 respondents, or 43%) directly expressed that they see this shift towards increasing importance as beneficial for the conservation field. That said, respondents expressed a range of rationales for incorporating social considerations into conservation projects. We found these fell into three broad categories: 1) necessary for success, where respondents identified the strategic importance of social considerations for conservation; 2) moral obligation, where respondents identified the incorporation of social considerations as an ethical choice; and 3) a conservation tipping point, where respondents identified that the Western conservation field has reached, or is currently reaching, a tipping point, after which social

considerations can no longer be ignored. These categories are not mutually exclusive, and many responses fit across two or all three.

3.4.3.1 Necessary for success

By far, most respondents aligned with a ‘necessary for success’ rationale (24 of 28 respondents, 86%). What these rationales all have in common is that social considerations are understood as either strategic additions or necessary elements for conservation (and its ecological and environmental objectives) to be effective or successful, based on the realities and predicted trajectories of society, of social-ecological systems, and/or of the structures of conservation funding:

I would have to say the social aspect, there's no future for this ecosystem, there's no future for the thorn forest ecosystem in the Lower Rio Grande Valley without the social aspect. [15]

For example, several respondents emphasised that the reality of the Anthropocene, with people having undue influence and control over the Earth's systems and our surrounding environments, renders social considerations as necessary for conservation to be successful:

... the recognition of going into an Anthropocene where we really are going to be determining how the Earth works or doesn't. And then that people will, again sort of hopefully, recognize that the social benefits are going to be the key to a lot of these kind of adaptation efforts. [116]

Increasing populations and urbanization rates were both noted as examples:

... as people who do land management, if we aren't considering the impact of our work on people, we're not going to be as successful. Increasingly our spaces where we do this work are going to be liminal, somewhat urban, somewhat rural spaces, and as cities continue to grow, I think we just have to start to consider more and more the impacts on people. [I10]

Many respondents also expressed how social considerations were necessary for successful conservation because of the inherent interconnections between nature and people. This was expressed pragmatically:

I don't feel like any of them [ecological, social, or climate considerations] can be successful without the other. If you emphasize one too much, you risk failing with the others, and then the project does not succeed. [I11]

Similarly, several respondents even noted that they found it challenging to separate ecological from social considerations when thinking about conservation:

Oh man, that's really hard because I don't necessarily separate the social from ... well, I'll try to articulate my struggle a little bit, it's that a lot of the times social and ecological in some of these contexts are kind of the same? Because humans are really so much part of the environment. [I16]

Others underscored the importance of social considerations for sustaining the success of conservation projects over time:

I think contributing to long term success, was that the societal values, it wasn't an add on. It was part of the project from the beginning. [I12]

Lastly, over half of respondents noted how crucial obtaining broader public support beyond the conservation community is for the continued success of any conservation project:

You know, I think if we're focused solely on getting trees in the ground, we've missed the point. Because we can only do so much ourselves. But the more that others are involved and understand and are bought in on the benefits, the more we'll be able to do it in the future. [I26]

For example, the integration of social considerations can be leveraged to facilitate a broader connection to the ecological goals of conservation or to make conservation more relevant to a wider audience, which in turn can result in greater financial and political support:

I think the only way we are going to be successful or largely successful in the world of conservation is if we have mass public buy-in ... If we have opposition, such as in our political sphere, then things can regress or slow down ... or just not move at all. So that is why we want public support, just on a pure mission basis, if we want to be successful. [I3]

A few respondents used terminology such as “selling” conservation to describe this: *“With a lot of the grant work we do here, the way I sell biodiversity conservation is through the value that it provides to the community.” [I5]*

3.4.3.2 Moral obligation

Incorporating social considerations because it is the right thing to do, and because there would be moral implications to not doing so, was referenced by less than half of respondents; 13 of 28 respondents, or 46% directly expressed a morally based rationale for incorporating social considerations into conservation work. This rationale type was the least commonly referenced but is closely related and feeds into components of the ‘tipping point’ type (see following section). Within this general category, respondents often referred to colonialism, racism, and justice, particularly as they intersect with Western conservation within the United States and globally.

One respondent described how values of equity and justice underly how their organization makes decisions about conservation projects:

... [prioritizing] working in communities that are underserved or need more support or are more vulnerable to climate impacts, you know all of those things are what we're thinking about when we're assessing for where to work and who to work with. [117]

Another respondent noted how environmental justice was not just a rationale, but a specific goal that they are working towards through conservation:

I think that's equally as important as we're thinking about urban conservation and really linking that closely with environmental justice ... I don't know if that's a goal per say? Or just the way in which we are working? But I think striving for environmental justice is certainly a loaded one, but I would say it's a goal. [119]

They went on to explain how colonial and racist histories of the conservation movement more broadly makes it especially important that conservation incorporates social considerations moving forward:

I think the conservation movement is deeply flawed ... it's so white, it's not nearly diverse enough. It's older too, like it's a lot of, you know, old white folks essentially ... classical conservation has always been you know, keeping our parks pristine and hedonistic and this idea of untouched and keeping humans and nature separate, and I think that's just very flawed. [119]

The influence and continued presence of colonialism in conservation, particularly Western conservation, was referenced by a few respondents when asked to reflect on the social considerations of their conservation projects:

I am constantly engaged with people in the field of conservation that want to save the world. And a problem with that perspective is that they, many of these people just choose a place and go and bring solutions, but they do not respect the local processes, they do not even have any single investment in understanding, they just drop in, fix something or think that they fix something, and then move on. And that is wrong. That is wrong because, it is a neo-colonial process where the scientist believes that their Western ideas of either problem or problem solving or even the baselines or the reasons, that their understanding is more nuanced than the understanding of the people who have lived there forever ... One of the things that we have to move towards is the decolonization of the practice of conservation, where we can engage, build long-term relationships with the communities that we want to work with to identify their perspective and their visions of the problems that they have. [I14]

Other ways respondents expressed morally-driven rationales for incorporating social considerations into conservation was by speaking to an interdependency between people and nature. Unlike the people-nature connection within the previous category that was viewed as essential for success, this was a much more cultural or spiritual connection that implies a moral obligation to pursue conservation in a more integrated, holistic way:

... we are a part of nature. And I think we need to put the emphasis back on that. So, we're existing with nature not in spite of it, not outside of it. And ... if we increase our wellbeing, we increase our capacity to care for our environment and be more involved with our environment as well. [I3]

A few respondents referenced how most, if not all, ecosystems have been influenced by people in some way, which necessitates the moral integration of social considerations into conservation:

There's not many places that you can go in this world, and believe me I've been to a lot of extremely remote places they are my favourite kinds of places. But, you know, the hand of humans is there. No matter where it is ... dealing with humans cannot be separated

anywhere that I've ever been from dealing with nature, you know? Solutions have to be really dual, not really just nature-based but culturally-based as well. [I15]

Another way a moral rationale for incorporating social considerations into conservation was expressed was through the notion of responsibility:

We have a social responsibility as scientists to address the needs that society has, these are urgent things when we are talking about climate change, it's not that some people would be affected, some people will be less affected, some people will be exempt from the climate impacts. This is a reality and the entire planet is going to be affected and it's a topic that deserves all brain power is invested into this. [I14]

One respondent explained how they have neglected social considerations in their previous conservation work, especially in regard to incorporating cultural benefits and meaningfully engaging with Indigenous and local communities, and how they are recognizing this gap and the need to do better:

... if we were to start over right now? I would build a stronger biocultural component to this project ... I think it would have been great to have from the start, a [local] community representative, kind of like community representation, in the design and possibly the implementation of this project ... I'm very much developing my understanding and appreciation for the Indigenous voice in conservation, and my, my awareness of how much is lacking ... I'll be fully vulnerable about, two years, four years ago, or even ten years ago when we were contemplating this action that we're currently doing now, I wasn't thinking, we need to incorporate [the local community's] opinion and perspective into this, because there isn't a current, active [community] presence at [the project site] ... But, if we want to export anything from this project beyond [the project site], we need to be able to represent the project and the results and the benefits in a way that's respectful of the cultural component and inclusive of it ... I wanted to recognize this is probably actually quite an important part that I don't want to say we missed, because we're working on it now, but we could have done better. [I22]

3.4.3.3 A tipping point for conservation

Over half of respondents (16 of 28 respondents, 57%) perceived the importance of social considerations within the conservation field to be reaching a ‘tipping point’, after which they can no longer be neglected. While the rationales expressed here are closely related to both the ‘strategic or necessary’, and the ‘morally right’ categories, the specifics of this idea were distinct enough to claim its own category.

Respondents that referenced this idea of a tipping point talked about the influence of broader social justice movements on themselves and conservation, including the Black Lives Matter movement and Indigenous rights movements:

I’m also reflecting on, again sort of our context here and particularly in the midst of the Black Lives Matter movement and sort of the BIPOC, sort of access to equity kind of dialogues, seem to permeate all over in conservation ... I feel like there’s a movement now for conservation to really be examining itself. [116]

Several respondents referred to issues with Western conservation itself, both in terms of its racist and colonial roots and how it has neglected or ignored social considerations, and expressed how members within the conservation movement have been starting to recognize these as critical issues:

I feel like we’re at a renaissance moment with it, and we’re recognizing that the brand of conservation that we have been promoting hasn’t been in recognition of, this could have been the, it’s been the John Muir sort of, the protecting nature for nature’s sake approach? And we’re in the Anthropocene now, right, so I think we need to be honest with ourselves about what it means to protect natural systems and why we are doing that. [122]

Another respondent explicitly emphasised the need for environmental justice within conservation:

I think the conservation movement is deeply flawed, and I feel like we're coming to like ... I think we're coming to a precipice, like as a nation and as a country ... I just feel like people are really starting to realize that like, environmental justice is the way to approach everything ... I'm hopeful that there'll be a major shift. [I19]

Respondents noted how some changes are already occurring within conservation organizations in response to this increased recognition within the broader movement, including implementing anti-racism and diversity, equity, and inclusion trainings for employees, as well as attempting to diversify who organizations hire as staff:

I would say it is already becoming much more important, and we are seeing a number of conservation groups offering training around kind of this diversity, equity, and inclusion kind of framework ... I see a number of environmental groups who might not have been as open to those social outcomes in the past are now becoming more and more, even driven by those social outcomes. [I4]

One respondent noted how these initiatives, especially diversifying hiring practices within conservation organizations, are contributing themselves to an increased recognition of the importance of social considerations in conservation:

"I think that there is a greater diversity of kinds of people in positions of power [in conservation organizations]. I think that there's more women in high leadership positions, and there's more people of colour in leadership positions than there were fifteen years ago ... and I think that these more diverse perspectives perhaps, and maybe I'm unfairly generalizing, but I think they greater value on these social outcomes." [I10]

Another idea that was referenced by a few respondents was the role that youth and younger generations are playing to facilitate a tipping point within conservation towards a greater incorporation of social considerations:

[Social considerations will become] much more important, and I think it's going to be driven by our new generations who are much more mindful of the social outcomes of other environmental endeavors. [I25]

3.4.3.4 Rationales for exclusion

Motivations to exclude social considerations from conservation projects were not commonly expressed by respondents, and when they were they were often listed as examples rather than strict personal viewpoints. However, some rationales were presented by a few respondents for excluding social considerations. The most common was the circumstance where a conservation project is taking place in a location with no nearby human communities, such as an uninhabited island with some determined ecological value:

I think there's probably projects where you're working in, you know, maybe on an island in like a really remote setting where like, the access of people is questionable, the use by people is maybe really, really low. I think that [social considerations] still needs to be a question in people's heads as they're doing research management planning in such places, but certainly would not be one of the primary goals for a very remote kind of setting. [I10]

Other rationales for excluding social considerations included circumstances where conservation is occurring in geographies with significant ecological value that would justify a primary or exclusive focus on ecological objectives over social ones:

I mean, like, some pristine natural areas can focus primarily on biodiversity conservation, and maybe there's a little bit of climate change or human benefits thrown in, but the main focus is on conservation. [I11]

While a minority perspective, others did express the view that because social considerations are central in all other aspects of society, they do not warrant increased attention in conservation – especially if that attention will drive attention away from ecological or climate objectives:

You could certainly make an argument that I could probably come on board with that ... that social outcomes are given undue power and influence. And that for that reason, conservation should focus a bit more on climate and ecological outcomes. Because the rest of our society that we operate in is focused almost exclusively on what's good for people ... And so, you could make an argument that there needs to be a voice for the other really important aspects of our sustainability as a species ... because there's an imbalance there, a profound imbalance. [I21]

Or, as another respondent expressed:

And then as far as the people, yeah let's think about people some, but people always, you know, they've ruled the ruse for a long time so I'm much less concerned about them. They win all the time anyhow. [I6]

One respondent expressed how the scale and urgency of environmental challenges justifies, or more specifically requires, an exclusive focus on ecological objectives that excludes social considerations:

... as conservation practitioners, as we move through and really try to address critical needs in order to really try to preserve and, you know, minimize ecosystem collapse and biodiversity collapse ... we're going to have to spend maybe less time socially and more time really addressing the problems in order to ward off some really bad things. [I8]

3.4.4 What is the potential of NbS for facilitating the integration of social considerations into conservation?

Over half of respondents (18/28, or 64%) incorporated people, and the relationship between people and nature, into their description of NbS and their understanding of what exactly makes an NbS an NbS. Solving problems for people with nature was a frequent way respondents described NbS when asked for a definition: *“But to me nature-based solutions are a little bit more about ... using nature to have more direct human wellbeing outcomes.”* [I7]. The majority (21/28 people, 75%) expressed NbS as having a role in conservation, with about half of respondents (15/28 people, 54%) specifically describing NbS as having a strong and important role.

When respondents reflected on what needs to happen (i.e., changes to make, enablers to foster, barriers to address) in order for NbS to play the role in conservation that they outlined, the ideas and needs expressed were similar to those referenced when respondents reflected on how conservation can better incorporate social considerations into the field. These ideas largely centered around an identified need for structural, systemic, and cultural shifts in conservation away from “conventional”, Western conservation and toward holistic and interdisciplinary models and approaches. The importance of interdisciplinary thinking and approaches within conservation was expressed by several respondents:

We don't have a choice anymore ... these sectors and siloes don't work. And we have to be looking at these things from like an interdisciplinary viewpoint whether it's the research or the activities ... it's not an option anymore to only think about one thing. They are too integrated. [I13]

Specifically, the need to incorporate social considerations into the core of how conservation is understood, designed, and implemented, was expressed:

I think a lot of the trouble has come from overly fragmenting those things [ecological, climate, and social considerations in conservation]. I'll give you just one really quick example. When it comes to conserving a rare species of bird in Hawaii, the fact that the bird has all kinds of connections to Hawaiian tradition is integral, it's fundamental, to preserving it. And preserving that bird is integral to preserving its whole habitat and vice versa. So, each of these three things have to be present I think, as more or less equal components. [I15]

To do this, multiple respondents explicitly expressed the need for social science insights, expertise, and perspectives to be incorporated into conservation from the conception of a project to its completion and evaluation:

... most of us come from an ecological or forestry background. And so, a lot of our training has been focused on those types of outcomes. But we talk regularly about the need to have more involvement with social scientists to make sure that our work is beneficial to, or that we're considering how we prioritize our work, that it is beneficial to human communities ... we continue to talk more and more about the social impacts of our work and that we need more social science input. That we lack that data, that we lack people who can analyze that data, understand the analysis and apply them to our work. So, yeah, it seems like an ever-increasing component of our conversations. [I26]

Holistic approaches were also identified as a factor for effective NbS. When asked about the role that an NbS approach should play in conservation, one respondent explained:

I think it's just acknowledging, again, how interconnected all these aspects of life on this planet are, you know, I think we are learning as a world is how to apply green solutions or nature-based solutions to that the issues that arise ... that doesn't mean that like science, engineering, and other aspects, also don't play a role, I think they definitely do. But I think we really have to think more holistically. [I20]

A few respondents even expressed how the incorporation of social considerations and the involvement of social scientists were needed for NbS to play a role in conservation more broadly. In the words of one respondent:

... what needs to happen, absolutely, is we need, maybe not less biologists, but we need a lot of the more softer skills people in the field. We need people in social work, and sociological studies, to come and do these things because biologists are good at biology, we need social people to help bridge the gap between communities and the ecological issues. [I3]

In addition to an increase in interdisciplinary conservation models by integrating more social science, other structural and systemic changes that respondents spoke to, both to encourage NbS approaches and to integrate social considerations into conservation, included a shift in conservation planning and funding models away from short-term thinking and instead towards long-term and adaptive approaches. Short timelines for conservation, due to restrictions from grants or political cycles, was one example of this issue. Speaking about NbS specifically, one respondent explained:

... there needs to be, I think, equally or probably more important, a recognition of natural timeline, which might not fit the traditional drivers for conservation or resourcing for conservation, which are election cycles and grant periods. You know, it's I think we often find ourselves in a pinch, or in a sort of tight spot with conservation because we're moving process forward to meet deliverables, and to achieve policy wins so people can get re-elected, and that's not how natural, those processes aren't considered in the natural law. [I22]

Increased time and labour needed for effective and authentic relationship-building, collaborative approaches, and incorporating diverse voices into conservation in order for NbS to be effective was another example:

“... within forestry, I know there's been a lot of work to have collaborative processes when designing forest restoration. And these large landscape level plans and bringing a lot of diverse voices to the table. And that takes a lot of work and time. And so, I think, being okay with timelines being extended, and some of the work involved in getting people to the table.” [I12]

Broader cultural and systemic shifts were also identified by multiple respondents when reflecting on both NbS and social considerations in conservation. Political will, social and cultural shifts, and shifts in how money is spent are examples that were outlined. When reflecting on what was needed to encourage NbS, one respondent explained:

Political will. It's happened in a small-scale but not at the scale that we need it to happen. So it's big like, it's social change, it's political will, and it's funding. And it's like, the willingness to invest you know, upfront, large amounts of money, even though that's hard to justify. But will be recouped into the future. [I13]

One respondent, a social scientist, explained that for conservation to be more holistic or interdisciplinary, the racist and colonial roots of Western conservation, must be systemically addressed:

I have to emphasize, I think that many of the failures of single conservation wins are because they do not take into consideration society, and in many cases, conservation efforts are just a neo-colonial movement, are just an imposition of neo-colonization, and the transference of the weight of the responsibility of conservation over the shoulders of the people that are not the culprits of the damages. So, we have to make sure that we understand the social aspects of the vulnerability of the ecosystems, and the vulnerabilities that have caused the loss of biodiversity. So, it's not, this cannot be seen simply from ecosystem dynamics without understanding that all ecosystems have thousands of years of human influence on them. [I14]

Similarly to how the majority of respondents perceive the importance of social considerations in conservation as growing, multiple respondents viewed the prominence of NbS within conservation to be growing as well. With this growth, there was a mirrored concern from some respondents that both social considerations, and NbS, will be seen as ‘buzzwords’ for funding purposes, and therefore lack substance or result in only surface-level change that fails to result in the systemic changes that Western conservation models demand. One respondent explained:

... the nature-based solutions thing, I have this kind of feeling that it's a very in vogue, because I spend a lot of time looking for funding, primarily for our different partner entities, and I see so many of these resilience and adaptation kind of requests for proposals, RFPs that are, you know, 'special preference for nature-based solutions' and I'm sometimes again sort of at a loss for like, what is that and how well thought out is that? [I16]

Another respondent expressed this same concern, but for social considerations:

... sometimes people say 'yeah we want to have this, we want the community to be involved', like, don't say that if you don't mean it, you're just trying to use the buzzword in the grant cycles" [I3]

Not all respondents were concerned about this however:

I'm really not very interested in people anymore, personally. Kind of done with them ... if you give me some good buzzwords and buzz-phrases to plunk in those proposals so people give us money to take care of nature, I'd be really happy. [I6]

3.5 Discussion

Our analysis reveals that calls in the literature for increased attention to social considerations are similarly being expressed, and, to some extent, implemented, by conservation practitioners within the United States. We identified high levels of awareness of the role and importance of

social considerations, and reflective and thoughtful recognition of the field's racist past, combined with a readiness (for most) to move towards decolonization. We argue that these findings suggest a key moment in the field of conservation where the field of practice has reached a 'tipping' point for change in practice. We expand on this argument, highlight persistent barriers to change and the potential role of NbS, and conclude with considerations for policy and practice.

3.5.1 Conservation's "renaissance moment"

The key moment that some respondents expressed the conservation field to be in was often connected to themes of justice. Widespread social justice movements, in particular the Black Lives Matter movement that gained significant recognition and momentum in the United States (where all conservation projects within this study took place) in 2020 and ongoing Indigenous-led movements for land rights around the world, were referenced by multiple respondents when reflecting on social considerations and whether their importance within conservation will change. It is evident that broader calls for justice in the face of oppressive systems, combined with major socio-political disruptions of the last two years, are influencing the ways the conservation community understands itself and its work, and may be catalyzing significant shifts within Western conservation.

Supporting evidence of this movement from the field of practice includes the Sierra Club's recent denouncement of the racist views of its founder, John Muir. In a public statement responding to the Black Lives Matter movement, one of the largest and oldest conservation organizations in the United States acknowledged the racist and colonial actions they have taken

in the past (Brune, 2020). The Sierra Club also committed to various changes, including shifting its leadership structure to support more Black, Indigenous, and people of colour, and funding internal diversity, equity, and inclusion initiatives.

The conservation field is long overdue for such a reckoning. Models of ‘conventional’, ‘Western’ conservation are rooted in legacies of colonialism and racism that still have impacts today (Kashwan et al 2021), such as the continued impacts of colonial conservation models on Indigenous peoples globally, including the dispossession of land (Domínguez and Luoma, 2020), and of the emergence of neoliberalism in conservation policies (Apostolopoulou et al, 2021). These issues have been discussed within the literature for decades (Cronon, 1996) and have been called out and campaigned against by historically excluded communities for longer. For example, within conservation, Indigenous communities have sought recognition of and redistributive justice for the historical and continued impacts from land dispossession and exploitation in global climate change negotiations (Doolittle, 2010), and have proposed their own alternative to the REDD program, ‘Indigenous REDD’, which is community-driven and prioritises the recognition of Indigenous territories (Espinosa Llanos & Feather, 2011). More generally, Indigenous-led movements have asserted their sovereignty and opposed settler colonialism for centuries (Hall and Fenelon, 2008), determining how their own rights and relationships to peoples and to the land will be respected (Artelle et al, 2019; Wildcat et al., 2014).

This study suggests that the intersection of recent moments of crisis and disruption with an ongoing growth in awareness of the role inequality, oppression, and injustice continue to play in

society more broadly and in conservation specifically, has led us to a pivotal moment where those who practice conservation may be ready to commit to deeper change, such as a movement towards decolonizing conservation. An increased understanding of the importance and value of social considerations is one example.

However, relatively few respondents expressed a moral rationale to incorporate social considerations into conservation, which was closely grounded in values of justice. This may suggest that, while perceptions of a ‘tipping’ point have close links to racism and colonialism in conservation and to the overdue need for justice, its recognition does not always translate to a moral or ethical rationale for incorporating social considerations.

Instead, most respondents linked their understanding of the importance of social considerations to strategic approaches to success. By integrating social considerations into conservation, practitioners can generate more support, or “buy-in”, for their work, especially from local communities and political decision-makers. This is a common argument made in the literature to increase the incorporation of social considerations within conservation, and there is evidence demonstrating how including social considerations increases local support (Bennet et al 2019; McNeill et al., 2018).

It is also important to note that the importance of social considerations is still not universally understood by conservation practitioners. Several respondents expressed rationales to continue largely excluding social considerations, some expressing viewpoints that they are overemphasised or ‘trendy’, and risk subtracting much needed attention from ecological

objectives. While this viewpoint was in the minority in this study, it directly stems from a dichotomous human-nature worldview that is core to ‘conventional’ conservation, where people and nature are at odds. This frame of understanding results from the colonial and oppressive systems that Western conservation is rooted within and continues to uphold through the rise of militarized conservation and continued uses of fortress conservation that serve to dispossess peoples from their lands and resources (Domínguez & Luoma, 2020, Kashwan et al 2021).

3.5.2 Supporting a structural transition in conservation

Conservation may be at a “renaissance moment”, as one respondent described it, but recognition of its history and past failings is not enough to catalyze the systemic change necessary to meaningfully integrate social considerations. More structural change would be needed. A gap still exists between the recognition of the value and importance of social considerations within conservation among practitioners and organizations, and the systemic changes needed within conservation structures to meaningfully and deeply integrate them into all stages of conservation work. We reveal how conservation practitioners are aware of this failure and of the ways it is impacting their work.

In particular, funding availability and grant structures pose significant barriers to incorporating social considerations. The ability to include intersectional and holistic approaches to conservation projects is largely dependent on whether such approaches can successfully secure funding. The priorities of external donors, and the ways grant agreements may restrict the adaptability or the timeline of a project, directly shapes conservation project design. If donor priorities do not explicitly include social considerations, conservation practitioners lose an

incentive to integrate them into projects – doing so could even be considered a risk if it results in a donor deciding that a project does not align closely enough with their own priorities.

Respondents also expressed how incorporating social considerations can often take time, especially when relationship building with communities is involved, which may not align with grant agreements that require certain deliverables or whose timelines match election cycles.

Structural barriers like these are not new – they are well recognised as obstructive to incorporating social science and social considerations into conservation (Bennett et al., 2017a, Viseu, 2015). They also have real repercussions for how social considerations are, or are not, incorporated into conservation. Very few respondents spoke about incorporating social considerations into the design of their conservation projects. Instead, social considerations were much more often understood as direct outcomes from their conservation project. This matters, because the failure to integrate social considerations, and social science, into conservation as a fundamental component of the conception and design undermines the potential for social considerations to effectively contribute to better, more holistic, solutions to conservation challenges (Ban et al., 2013; Bennett et al., 2017a; Bennett et al., 2017b; Viseu, 2015). Failures to share (or transfer) decision-making power and co-design conservation with local communities through rights-based approaches (e.g., Sarmiento Barletti and Larson, 2017), especially the Indigenous communities on whose traditional territories all conservation in the United States occurs, also risks continuing to perpetuate the racist and colonial models that Western conservation is founded upon (Artelle et al., 2019, Domínguez & Luoma, 2020, Kashwan et al., 2021).

There are specific, tangible ways forward. Structural changes to funding structures are required to foster social consideration integration and support more holistic, adaptable, and long-term conservation models. However, funders are not the only groups with a role. Conservation organizations have an obligation to take a leadership role to not only support, but actively foster conservation models that are more holistic and interdisciplinary.

Incorporating social considerations directly into the mission of conservation organizations can help build an organizational culture that fosters the meaningful integration of people into conservation work; for example, the Canadian Parks and Wilderness Society incorporates the protections of “culturally significant” land and water into their mission statement, which also explicitly highlights the “sovereignty and leadership of Indigenous nations” (CPAWS, 2021). Intentional shifts in the make-up of conservation organizations towards increases in social scientists and people with interdisciplinary backgrounds, and members of historically excluded communities, all of whom are more likely to support people-centred conservation (Sandbrook et al., 2019), are required as well. Committed investment is also needed to build the capacity of conservation organizations to meaningfully integrate social considerations into their work, especially at the design phase.

3.5.3 The supportive potential of NbS

NbS could potentially play a role in the movement towards more holistic conservation approaches as well. Reflections on how to foster effective NbS were often associated with the need for structural, systemic, and cultural shifts in conservation towards holistic and interdisciplinary models – just as social considerations were. Structural shifts in funding

structures towards long-term models that prioritize interdisciplinarity, in the make-up of conservation organizations towards increases in social science and scientists, and towards increased knowledge and capacity to design effective projects, all listed in detail above, are also needed to foster NbS. This suggests that the current increasing role of NbS in conservation, which both aligns with the literature (e.g., Seddon et al., 2021) and with the perceptions of respondents, may also support an increase in the incorporation of social considerations if its growing importance is accompanied by these structural changes.

Our research suggests that at least some conservation practitioners understand the concept of an NbS ‘approach’ to conservation as inherently supportive of a movement in Western conservation towards interdisciplinary models, given most respondents directly incorporated the relationship between people and nature into their understanding of NbS. An increase in NbS approaches could be one strategy among the suite needed to foster holistic models within the broader conservation community that will integrate social considerations at its core.

However, these results do not guarantee that the increasing popularity of NbS will support a shift towards holistic conservation approaches, nor do they suggest that NbS is even necessary for such a shift to occur. As illustrated by the concerns among some respondents that ‘NbS’ is only a buzzword, it is possible that an increase in NbS approaches into conservation could do more harm than good; especially if ‘NbS’ represents only a change in terminology and fails to foster structural changes in the design, delivery, and governance of conservation. Some scholars have noted how the mainstream framing of NbS is narrowly anthropogenic (Randrup et al., 2020) and reinforces a false dichotomy between people and nature (Welden et al., 2021) rather than

communicating an interlinked, interdependent relationship. There is also evidence that the NbS concept is reflecting and reproducing historical fault lines in international environmental governance, restricting its potential to support transformative change in these spaces (Melanidis and Hagerman, 2022). The integration of ‘social considerations’ could cause harm as well if they are simply added to conservation projects as an after-thought, or only used as tools to increase public “buy-in” for a pre-determined conservation initiative, rather than deeply integrated into all aspects of the conservation process, from conceptualization to evaluation. Ultimately, the integration of new terms and ideas, whether that be NbS or social considerations, will not result in effective and holistic solutions to conservation challenges unless they are accompanied by structural changes that pay attention to power dynamics and justice.

3.5.4 Recommendations for future research

This study was particularly focused on the views of conservation adaptation practitioners within the United States about social considerations in conservation more broadly. Further research that specifically examines how social considerations can be effectively incorporated into all stages of conservation is needed (Conservation Measures Partnership, 2020). Research that explicitly examines how social considerations are (or are not) incorporated into the conceptualization and design of conservation projects would be especially beneficial in addressing some of the limitations here.

Additionally, further research is needed on what motivates conservation practitioners to incorporate social considerations, and whether any kind of rationale (for example, as necessary for success, or as a moral obligation) is more effective at fostering transformative and systemic

shifts in conservation, such as sharing or transferring power by embracing co-development or community leadership models.

There is also a need to further understand where exactly the broader conservation field of practice is at with respect to a ‘tipping point’. This study provides evidence that some conservation practitioners across the United States are expressing a readiness to support movements like the decolonization of conservation, but it will be important to better understand the extent of that readiness. Decolonization scholars have identified some examples of what decolonizing conservation might mean. Examples include returning control over Indigenous lands and territories to Indigenous peoples, including to communities that have been dispossessed of their lands for the creation of protected areas (Colchester, 2004); providing mechanisms for redress, restitution, and compensation for those violated by conservation models like fortress conservation and supporting the necessary legal and political reforms to acknowledge Indigenous land title (Domínguez and Luoma, 2020); recognizing the agency of Indigenous and local communities to make decisions about the use their own resources, and enabling them to lead and design conservation programs (Kashwan et al., 2021). Research that directly examines conservationists’ willingness to implement all that would be required to foster more holistic, effective, and just conservation models (and whether that willingness differs across socio-political-geographical contexts) would build upon this work.

Lastly, empirical, on-the-ground data that examines whether an NbS approach is linked with more holistic and interdisciplinary conservation would further our understanding about the potential impact this newly popular concept may have within the conservation field.

3.6 Conclusion

The understanding of the role and importance of social considerations is not new; it has been documented for decades within the literature by social scientists and has been understood for millennia by local and Indigenous communities across the world. The various enabling conditions and barriers to the incorporation of social considerations is also well documented. What is novel about this study is the identification of a ‘tipping’ point within the conservation field, brought about by the intersection of this well-known knowledge with recent socio-political disruptions has brought upon an increased recognition of social considerations and an increased willingness and readiness to address the racist and colonial roots of the Western conservation field.

If we are to leverage this moment in time and successfully tip over into a “renaissance” era of Western conservation, we need to critically address the long-standing structural barriers that obstruct and stifle systemic shifts in practice. This includes restructuring funding and grant systems and altering the make-up and missions of conservation organizations in ways that support more holistic, interdisciplinary, long-term, and adaptable conservation models, integrating social considerations within all conservation stages, and also addressing elements of power and justice. NbS approaches, and their growing role in conservation, could be one strategy to foster more holistic conservation models, but it is not guaranteed.

The opportunity this moment in time presents could potentially foster a transformation within Western conservation models where social considerations are meaningfully built in – but only if steps are taken to restructure the outdated systems standing in the way.

Chapter 4: Summary and conclusions

Using a qualitative inquiry approach centred on document analysis and semi-structured interviews, this thesis examined how narratives about NbS are being characterized in international climate governance, how social considerations are being incorporated into conservation adaptation projects on the ground, and it explored the potential for NbS to support conservation that meaningfully integrates social considerations. This final chapter summarizes the major findings.

Results from Chapters 2 and 3 are briefly reviewed below for their individual contributions. In addition, the key insights from both chapters are integrated to examine the narratives and perceptions of NbS and their overarching implications for diverse actors as they seek to achieve multiple and often contested objectives through conservation across scales of governance. Empirical and policy-relevant contributions of this thesis are then discussed, including novel empirics from the social sciences that fills a key gap in the NbS literature, followed by suggestions for future research. Finally, the strengths and limitations of this thesis are addressed, and final reflections are shared.

4.1 Key insights and findings

The first objective of this thesis was to characterize and analyze the narratives associated with NbS in international climate governance (Chapter 2). Evidence was collected through two methods of data collection and included 35 public-facing documents from the non-academic, grey literature, and 135 pages of verbatim interview transcripts from 10 semi-structured interviews with a diverse range of experts in the NbS field. A narrative analysis using a discourse

coalition approach revealed two core narratives surrounding proposals for and against NbS in global climate governance: 1) *Leveraging the power of nature* – NbS are multifunctional, powerful, and must play a critical role in addressing global challenges, especially climate change (held by NbS proponents); and 2) *Dangerous distraction* – NbS are being co-opted as means to continue with what is seen as the unsustainable, unjust, status-quo (held by NbS critics).

Leveraging the power of nature is the dominant narrative within global climate governance (83% of documents analysed aligned with it), and it is held primarily by international organizations, large non-governmental organizations (NGOs), and the private sector. Five central elements define this narrative: (1) NbS are critical to addressing climate change, (2) carbon markets play a role in implementing NbS, (3) NbS can connect actor groups across sectors (especially climate and biodiversity), (4) the private sector and Indigenous Peoples and Local Communities (IPLCs) are among the most important NbS stewards, and (5) the ambiguity of NbS is used both implicitly and explicitly.

Dangerous distraction is an alternative NbS narrative within global climate governance (aligning with 17% of documents analysed), held primarily by local and Indigenous organizations and grassroots civil society groups. This narrative is defined by four central elements: (1) the problematic association of NbS with carbon markets/offsets, (2) concerns over private sector engagement, (3) the use of NbS could jeopardize human and Indigenous rights, and (4) ambiguity is a fundamental flaw.

Both narratives use the ambiguity of NbS to further their own arguments. Proponents leverage ambiguity as an opportunity to position NbS as a boundary object in order to build cross-sectoral coalitions of actors centering nature as a “solution” for global challenges (and subsequently generating increased funding for nature conservation and restoration initiatives). Critics, on the other hand, position ambiguity as a fundamental flaw that makes NbS vulnerable to co-option and greenwashing, and therefore warrants a rejection of the concept entirely. The ambiguity of NbS, while holding some potential to bring certain actors together, has also fostered the development of this alternative narrative.

Notably, Chapter 2 reveals the ways in which the ideas of NbS in these influential governance spaces are reflecting and reinforcing deeply engrained power asymmetries that determine who can access environmental decision-making and who is excluded from it. The discourse coalitions behind each narrative reflect the decisions between those who operate within and benefit from the status-quo structure of decision-making (NbS proponents), and those who are excluded and harmed by current decision-making structures and instead advocate for systemic change rooted in redress and justice (NbS critics). While both narratives are rapidly changing, and while *Leveraging the power of nature* is currently adopting elements of critique and caution from the *Dangerous distraction* narrative, NbS proponents still have work to do to address criticism if the idea is to truly be supportive of transformative change.

The second objective of this thesis was to examine how conservation practitioners (within the United States) view the concept of NbS, and how social considerations are (or are not) incorporated within applied conservation adaptation projects (Chapter 3). Evidence was collected

through semi-structured interviews with 28 practitioners who were actively involved in implementing conservation adaptation projects that had successfully received funding from the Wildlife Conservation Society's Climate Adaptation Fund. 400 pages of verbatim interview transcripts were collected, and analysis revealed three key aspects for understanding how conservation practitioners think about and are seeking to address social considerations. First, practitioners hold diverse views on what constitutes social considerations, with most highlighting relational benefits or relationships and collaboration. Second, while many rationales for incorporating social considerations were mentioned, their necessity for success and for engendering public support emerged as particularly important. Third, strong enablers for incorporating social considerations into conservation included practitioners with social science backgrounds and worldviews/values that prioritize justice and contexts with obvious links to human communities. Lastly, in regard to NbS, practitioners mostly understand the concept as involving people in some way and as having a growing role in conservation.

A notable insight from Chapter 3 is the identification of a “renaissance moment” within the mainstream conservation field of practice, as perceived by practitioners. Respondents overwhelmingly understand social considerations to be growing in importance within conservation and view the field to be at a tipping point for structural change that reckons with its racist past and is ready to move towards decolonization. This perspective of a tipping point is connected to a confluence of widespread social justice movements – including the Black Lives Matter movement and Indigenous land rights movements – which crested in 2020, acute socio-political disruption, and ongoing recognition of the importance of social considerations in the conservation literature.

However, persistent structural barriers to deeply integrating social considerations into conservation practice remain. Funding availability and grant structures in particular pose significant barriers. At the same time, when social considerations are incorporated into conservation it is often as an add-on, rather than integrated into the conception and design as a fundamental component of the project. NbS could potentially play a role as one strategy among many to better foster more holistic conservation approaches that integrate social considerations, as practitioners within this study understand the NbS concept to be inherently supportive of interdisciplinary conservation models. However, this is not guaranteed; an NbS “approach” in conservation would need to be accompanied by structural changes in the design, delivery, and governance of conservation.

Collectively, these two chapters explore the influence of the ideas of NbS across scales of governance and results from both point towards a similar conclusion: NbS does hold some potential to bridge siloes and encourage interdisciplinary approaches to global challenges (including within climate governance and the conservation field of practice), yet systemic and structural barriers related to power, access and participation, and justice limit this potential. Questions concerning who has access to power and resources, who is making decisions over global policy and over on-the-ground practice, whose knowledges and worldviews are being drawn from, and who controls how and for what conservation funding is distributed, all directly shape NbS narratives and the effectiveness of applied conservation projects.

Transformative change cannot occur without major shifts within the underlying values and worldviews that shape our models of governance, our economies, and the ways we relate to nature (IPBES, 2019). Findings from this thesis underscore how the conservation field of practice, and global environmental governance more broadly, are still largely rooted in Western worldviews that are governed by siloes and false dichotomies. These dichotomies don't only serve to separate people from nature, but they also silo actions that address climate change from those that address biodiversity loss and directly inhibit transformative change. The "NbS" concept was conceptualized within global governance where Western worldviews are dominant, and its biggest proponents are those that benefit from the status-quo systems of access and power. NbS cannot contribute to transformative change unless it somehow is able to address the same systems of power it originated from, both in global environmental policy and in conservation practice on-the-ground.

Table 4.1: Summary of key research findings

<p>Overall research aim: examine the narratives and perceptions about NbS, and their implications for diverse actors as they seek to achieve multiple and often contested objectives through conservation at various scales of governance.</p>	
Research Questions	Key Findings
<p>How do different actors (e.g., non-profit organizations, Indigenous communities, international environmental organizations, grassroots activists, industry) view the opportunities, challenges, and risks associated with NbS?</p>	<ul style="list-style-type: none"> • There are two core narratives surrounding proposals for and against NbS in international climate governance: <i>Leveraging the power of nature</i>, and <i>Dangerous distraction</i>. • The discourse coalition aligned with <i>Leveraging the power of nature</i> is primarily made up of international organizations, large non-governmental organizations (NGOs), and the private sector, who argue that NbS are multifunctional, powerful, and must play a critical role in addressing global challenges, especially climate change. • The discourse coalition aligned with <i>Dangerous distraction</i> is primarily made up of local and Indigenous organizations and grassroots groups who argue that NbS are being co-opted, largely by corporations, as means to continue with what is seen as the unsustainable, unjust, status-quo. • Both narratives leverage the ambiguity of NbS to further their own arguments, but they do so in different ways: <i>Leveraging the power of nature</i> uses ambiguity implicitly as a boundary object to build cross-sectoral coalitions of actors advocating for nature as a “solution” for global challenges, while <i>Dangerous distraction</i> explicitly positions ambiguity as a fundamental flaw that enables co-optation and greenwashing, warranting a rejection of the term entirely.
<p>Which narratives tend to be dominant in policy spheres and what does this reveal about participation in the problem definition and knowledge production process?</p>	<ul style="list-style-type: none"> • The NbS narrative that is the most dominant in international climate governance is <i>Leveraging the power of nature</i>, driven largely by international organizations and corporations. • <i>Leveraging the power of nature</i>’s dominance reflects the significant power imbalance present in these governance spaces, where Indigenous groups, grassroots

	<p>groups, and justice-orientated groups have less access to the problem definition and knowledge production process.</p> <ul style="list-style-type: none"> • <i>Dangerous distraction</i> is influencing and changing the way NbS proponents understand and communicate the concept, demonstrating a potential shift if this change can be made substantive, and not only symbolic.
<p>How are conservation practitioners thinking about and incorporating social considerations in conservation adaptation projects?</p>	<ul style="list-style-type: none"> • Conservation practitioners (within the United States) are increasingly recognizing the value of social considerations in conservation and are increasingly willing and ready to address the racist and colonial roots of the Western conservation field that have fostered a people-nature dichotomy and justified human rights abuses in the field – we are at a ‘tipping’ point for change. • Despite this, there are persistent structural barriers to fully integrating social considerations into conservation, such as funding availability and grant structures. Still few conservation practitioners are incorporating social considerations into the design of their conservation projects.
<p>What factors (e.g., partnerships, knowledge) have enabled the incorporation of social considerations into conservation adaptation projects?</p>	<ul style="list-style-type: none"> • Key enablers for the incorporation of social considerations into conservation include the personal background of conservation practitioners (i.e., a social science or interdisciplinary background), the influence of the local context (i.e., the cultural history of a specific site), partnerships and relationship-building, and the mission and structure of the implementing organization. • Key barriers that restrict the incorporation of social considerations into conservation include grant structures and a lack of supportive funding, a lack of knowledge or capacity, conflicting social and ecological goals, and the influence of the local context.
<p>How do conservation practitioners perceive the concept of NbS, and what role could NbS have in incorporating</p>	<ul style="list-style-type: none"> • At least some conservation practitioners (within the United States) understand NbS as a concept that is inherently supportive of a movement towards interdisciplinary models in conservation, and most respondents directly incorporated the relationship between people and nature into their understanding of the concept.

<p>social considerations into conservation projects?</p>	<ul style="list-style-type: none">• NbS could be one strategy among many to better foster more holistic conservation approaches that integrate social considerations, if its growth in popularity is accompanied by the structural changes that conservation practitioners understand is needed for NbS to be effective – this includes changes in funding models and the make-up of conservation organizations.• However, an increase in popularity of NbS is not guaranteed to support more social consideration integration and could instead be harmful to conservation overall if it only represents a shift in terminology and not structural change.
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4.2 Research contributions

This thesis makes two main contributions, the first of which is an empirical contribution. There is a lack of empirical engagement with the NbS concept across the literature in general, and there is a near complete lack of empirical evidence from the social sciences (Hanson et al., 2020; Osaka et al., 2021). The results presented here represent a first step towards addressing these gaps. Through a qualitative inquiry approach and by using multiple methods, this research offers much-needed insight, backed by empirics, about the narratives and perceptions of NbS, and their implications for diverse actors seeking to achieve multiple goals through conservation on two key scales that the NbS concept is operating within: international environmental governance and on-the-ground conservation practice.

This thesis contributes to the environmental governance and narratives field of scholarly inquiry to better understand the way multiple actors are engaging with and understanding the ideas of NbS, and the implications for global environmental governance and for social considerations within conservation practice as the concept grows in popularity (Seddon et al., 2021). More specifically, Chapter 2 offers the first empirical exploration into NbS narratives in international climate governance through a narrative analysis and discourse coalition approach. The first empirical exploration through a case-study approach of how conservation practitioners are understanding the NbS concept across the United States and its territories is also offered within Chapter 3.

More concretely, this thesis contributes empirical evidence of the two core narratives and their respective discourse coalitions surrounding NbS in international climate governance, and the

central role ambiguity plays within both narratives. Additionally, these results also contribute empirical evidence of a perceived “renaissance moment” in the conservation field of practice among conservation practitioners, characterised by the sense that social considerations will grow in importance and an increased awareness of and readiness to reckon with the field’s racist and colonial past.

Combined, these findings suggest that NbS could hold potential to support transformative change both in global environmental governance as a boundary object and on-the-ground through encouraging interdisciplinary approaches to conservation. However, the findings also emphasise that this potential is significantly restricted by structural and systemic barriers, which are inherent to top-down, Western-centric institutions within which the NbS idea originated. These institutions are grounded in the same knowledges, worldviews, and power structures at the root of environmental challenges. Ultimately, this thesis offers empirical evidence to reinforce that a single concept or idea cannot bring about transformative change either in policy or practice without paying attention to power, access, and participation on a systemic basis.

The second main contribution relates to policy and practice. On the policy side, the evidence presented here suggests that, if it remains ambiguous, NbS cannot be a specific, legal element of international efforts without risking the reinforcement of unjust power asymmetries that privileges corporations and international organizations over IPLCs. Specifically, this highlights the need for NbS proponents in international climate governance to meaningfully reckon with the critiques of the *Dangerous distraction* narrative. A reckoning would need to include shifting the way *Leveraging the power of nature* frames the private sector away from innovators and funders,

and towards emphasizing responsibility, accountability, and justice. This would also include clearly prioritizing IPLC leadership and rights-based approaches that do not impose false limitations or perpetuate systemic power imbalances.

As for insights for conservation practice, this thesis highlights a potential tipping point in conservation that could be leveraged to foster more holistic, interdisciplinary conservation approaches that deeply integrate social considerations. The argument made here is that this tipping point is likely due to a confluence of well-documented knowledge on the importance of social considerations for effective conservation, ongoing social movements pushing back against the racist and colonial worldviews that mainstream conservation is rooted in, and recent, acute socio-political disruptions.

The conservation field has a significant opportunity to make large strides towards decolonizing conservation, which is crucial for conservation to be more effective and just in the long-term (Domínguez & Luoma, 2020; Fletcher et al., 2021). To do so, the structural barriers this research identifies need to be addressed. This includes restructuring conservation funding and grants to support interdisciplinary and holistic strategies, adaptability, and long-term project design. This also includes increasing the integration of social science that is grounded in inclusivity, and the representation of practitioners with interdisciplinary backgrounds and who hold knowledges and experiences outside of Western natural science within conservation initiatives and organizations. Lastly, this includes intentionally integrating social considerations into the mission and structure of conservation organizations. Finally, this thesis offers evidence that the NbS concept could support shifts towards more holistic and interdisciplinary conservation, and environmental

governance more broadly, across scales. However, for NbS policy and practice to fulfill this potential, the growing popularity of the NbS concept must be paired with structural changes that account for power and justice.

4.3 Research strengths and limitations

A clear strength of this thesis is its empirical richness, consisting of data from 534 pages of verbatim interview transcripts and 35 documents, and the use of multiple data collection methods to facilitate a deep understanding of the ways NbS narratives are changing and influencing each other. Another notable strength is its direct response to a stated need for increases in empirical research within the NbS body of literature, and specifically increases in empirical insights from the social sciences. This research represents the first narrative analysis and first identification of discourse coalitions that are engaging with the NbS concept in international climate policy. It is also the first look into how conservation practitioners across the United States view the NbS concept and its potential to support an increased integration of social considerations within conservation practice. Lastly, this research is further strengthened by my own personal expertise engaging with the NbS discourse at a global scale, outside the bounds of academia. I was able to identify key gaps and needs within the NbS body of literature and access a constellation of experts from a range of NbS perspectives that another scholar might not have been able to.

The limitations of this research are also important to acknowledge. While case studies are useful for an in-depth understanding of a topic within a bounded context, the insights gained are inevitably contextual to that time and space. Especially in the case of Chapter 2, where the NbS discourses and associated narratives are changing so rapidly, faster than the literature can

account for, and where discourses are occurring within a range of venues and scales. The documents analysed for Chapter 2 are bounded to the specific time they were published (surrounding the UNSG CAS of September 2019, and COP 25 of December 2019). While we were able to capture some of this change through the interviews, which were conducted between September 2020 – January 2021, and we were able to point to this change further by sharing brief insights from my participation in COP 26, which occurred in November 2022, the NbS discourses will likely have continued to evolve further by the time this thesis is published. Fully escaping the contextual nature of this research would be impossible (and beyond the scope of the research questions presented here).

More broadly, multiple research judgements and specific decisions were made in the process of collecting, selecting, and framing the data that is presented in Chapters 2 and 3 in the form of quotes. I made decisions about which documents to include and which to exclude from examination, who to contact and invite for an interview, what questions to ask, which emerging themes to focus on during the analysis, and which specific quotes to include as evidence for my findings. Therefore, as is the case in all qualitative inquiry, the results of this thesis inevitably represent one (my) scholarly interpretation (as supported by my advisors and further validated by my respondents and collaborators) of NbS discourses and the ways social considerations are being incorporated in conservation projects at a particular point in time, within particular socio-political geographies, and at particular scales. The two cases presented here are not intended to represent the entire breadth of NbS discourses within global environmental governance, or even climate governance (Chapter 2). Neither are they intended to represent the entirety of ways social considerations are or are not being incorporated into conservation projects, nor the full range of

ways conservation practitioners are understanding NbS, across the United States or globally (Chapter 3). However, broader implications of this work are still relevant to the policy and practice landscape, especially as insights concerning systemic inequities, restrictions to decision-making that specific actor groups face, and the structural barriers to holistic, interdisciplinary governance and policy that accounts for nature, climate, and people are critical to address.

4.4 Future research

There are multiple potential avenues that require further inquiry, especially as the NbS concept continues to increase in influence. Firstly, further research is needed to explore and characterize NbS narratives, especially within global biodiversity governance (such as surrounding the UN Convention on Biological Diversity) to build on the particular focus this thesis has on global climate governance and to clarify the potential role of NbS to bridge climate and biodiversity governance. Further empirical research is also needed to explore the ways in which NbS narratives like *Leveraging the power of nature* and *Dangerous distraction* are shaping NbS-related policy, research, and practice. Studies that examine the equity and justice implications of NbS interventions would be especially beneficial, as would be further empirical data on whether and how an NbS “approach” is associated with conservation practice that is more holistic and interdisciplinary.

Secondly, the need to understand how social considerations can be effectively incorporated into conservation practice, especially in the design phases, is ongoing and was specifically identified by respondents within Chapter 3 of this thesis. Respondents also identified a need for tools and processes to effectively evaluate the effectiveness of social goals and objectives within

conservation, work that will likely be highly contextual to time and place and would require significant and specific research. Research that explores whether any specific kind of motivation for conservation practitioners to incorporate social considerations is more effective than others at fostering transformative change within conservation practice would be beneficial for the field as well. Lastly, this thesis has opened up an avenue to further understand where exactly the broader conservation field of practice is at with respect to a ‘tipping point’. Research that directly examines to what extent conservationists are willing to implement all that would be required to foster more holistic, effective, and just conservation models (and whether that willingness differs across socio-political-geographical contexts) could be critical for the ongoing movement to decolonize conservation.

4.5 Final reflections

Current NbS conversations are incredibly dynamic, something that I find fascinating. Discourses has evolved even within the period spent collecting data for this thesis. As a young person who has, quite intentionally, positioned herself as a youth leader and activist within the NbS discourses on a global level, I have discovered that actors want me to situate myself within a single NbS perspective. Youth have emerged as a powerful voice in the movement for climate action and climate justice, especially in recent years. We have become moral architects of the global climate conversation. Within the NbS space, as a young person, I have personally been pulled by actors on all sides of the conversation; both those that align with *Leveraging the power of nature* and with *Dangerous distraction* have pushed me to advocate for one framing of NbS over another. I have had to continually reflect on this, especially during the interview process, in

order to understand the ways others in the NbS field see me and the ways that impacts the validity of my data.

What the process of this reflexivity, and of writing this thesis, has revealed to me is that there isn't one correct framing of NbS. The influence of ideas is nuanced and often ambiguous and the way we engage with them depends on who is telling the story. Of course, the mainstream and dominant stories that shape, direct, and constitute both global climate governance and the conservation field of practice are told by those who hold status-quo power and benefit from systemic inequity. Therefore, the way we understand and engage with ideas like NbS, ends up being about power and politics, relationships, trust, and justice.

“It's about power and structural barriers” is not exactly a ground-breaking finding. I remember being almost disappointed when I found that the barriers to incorporating social considerations conservation practitioners were sharing with me in Chapter 3 were well-documented by other scholars. Barriers like a lack of capacity and knowledge, and limitations posed by granting structures. However, as I was reminded by my research advisors, the fact that we are still needing to point these barriers out is significant. They may be well understood by the academy, yet still they persist. Any proposed solution to the siloes of environmental policy and practice that are not grounded in fundamentally shifting these structures cannot contribute to transformative change.

I felt myself go back and forth on my own, personal perspective towards the NbS concept. In addition to the push and pull I was feeling externally as a scholar and as a youth activist, I was

struggling internally with my personal history with this specific term. “Nature-based solutions” sparked a sense of hope within me the first time I heard it. Hope for the possibility of breaking down siloes between climate and biodiversity policy and practice and for the opportunity to communicate these interconnections that I feel so passionate about, to help reshape our dominant worldviews towards a more holistic and intersectional perspective. In the beginning it was challenging for me to critique this concept because in many ways my discovery of “NbS” is responsible for the current direction of my career both inside and outside of academia.

In the end, and thanks to a continuous internal reflection process throughout the writing of this thesis, I have found myself letting go of the perspective I held when I first entered grad school, and instead embracing the nuance head on. “NbS” as a concept both matters, and it also doesn’t all at once. The ideas it presents, about addressing global problems with nature and the interconnectedness of people, nature, and climate, are not new – they have long been understood and are embodied in the worldviews and knowledges of Indigenous and local peoples (Fletcher et al., 2021; Indigenous Climate Action, 2021; Kimmerer, 2013). Whether or not we use the phrase “nature-based solutions” matters less than who we are listening to, and who is making the decisions. And as this work makes clear, we still have a long way to go to diversify whose stories shape our understanding of environmental challenges, and of their solutions.

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Appendices

Appendix A Supplementary Data (Chapter 2)

<i>Narrative</i>	<i>Analytical code</i>	<i>Quote</i>	<i>Source</i>
<i>Leveraging the Power of Nature</i>	NbS is critical to addressing climate change.	“Urgent action is needed: without protecting and restoring natural ecosystems and improving land management we will not be able to limit global warming to 1.5°C.”	Document: (Climate Action Network, 2019)
	NbS is critical to addressing climate change.	“It is time to go on the climate offense by utilizing forests’ proven natural ability to remove and store carbon at-scale.”	Document: (Arbour Day Foundation, 2019)
	NbS is critical to addressing climate change.	“...NBS can provide over one-third of the cost-effective climate mitigation needed between now and 2030 to stabilize warming to below 2 °C, achieving nature’s mitigation potential of 10-12 gigatons of CO ₂ per year.”	Document: (UN Global Compact, 2019).
	Carbon markets play a role in NbS.	“carbon markets is one key enabler, I believe, for how we can mobilize more much finance into the nature space. That’s a particular area of interest.”	Interview: IGO-10
	Carbon markets play a role in NbS.	“... all companies can make use of inseting or offsetting using NCS credits to compensate for emissions that cannot be avoided through their mitigation strategies, helping draw down or avoid carbon emissions in order to achieve net-zero emissions in the second half of the century. NCS carbon credits should be used as a tool to help companies to demonstrate leadership, and to make additional, near-term contributions towards their climate goals.”	Document: (WBCSD, 2019)
	NbS can connect actor groups across sectors.	“it’s [NbS] genuinely bringing together conservation, development practitioners together ... and people working in the world of climate change. So, bringing together these two communities which have generally worked in isolation from each other are now working together. And that’s what nature-based solutions does, because it’s about working with nature by and for people, it’s about addressing poverty whilst also trying to address the impacts, and to a certain extent, the causes of climate	Interview: Ac-8

	change. So, it's important because it has reframed the relationship between people and nature ... what nature-based solutions has done has enabled that shift in narrative within governments and business and I think that's why it's important.”	
NbS can connect actor groups across sectors.	“I think to me it [NbS] just means harnessing the power of nature to help us deal with an overwhelming crisis or challenge, as it relates to climate, it could be a lot broader but I know that in this case you talk about it as a solution to climate change. Yeah, and I think to me it's almost acknowledging our, not insignificance, but almost our partnership with the environment and the planet, and that not everything is human-led or, and I think that that acknowledgement of the partnership between nature and humans in the tackling of the problem is really nice. I think in some ways there's aspiration to it, for me, there's an inspiration that comes from the type of language”	Interview: Youth
NbS can connect actor groups across sectors.	“Negotiating under the umbrella of nature-based solutions helps us provide a new framework, and this is why it's so important to get the message right now, to work with this under the COP 26, the UN Convention on Climate Change, as well as the Convention on Biological Diversity.”	Interview: Ac-9
The private sector is a key steward for NbS.	“The finance community also plays a crucial role ... Making a clear business case will unleash the untapped potential that nature-based solutions bring ...”	Document: (Inter-American Development Bank, 2019).
The private sector is a key steward for NbS.	“Investment from the private sector is going to be crucial for how we think about jobs and green recovery ... But also, if we really want innovation. And I think we need all sorts of innovation ... that innovation is going to come from the private sector.”	Interview: IGO-10
The private sector is a key steward for NbS.	“Active participation of business is a core driver in achieving international environment and development agreements, namely the Paris Agreement, the Convention on Biological Diversity (CBD) and the Sustainable Development Goals (SDGs), and their contribution should be promoted”	Document: (CDP, 2019)

IPLCs are a key steward for NbS, but with limitations.	“I’m interested as we head to Glasgow is there some way we can actually create real space for, not just sort of the token inclusion of Indigenous peoples but some real space for what that could look like?”	Interview: (Interview, IGO-10).
IPLCs are a key steward for NbS, but with limitations.	“Their [IPLCs] traditional knowledge, coupled with science and research, is indispensable for us to understand how to best work with nature.”	Document: (IIED, 2019)
Ambiguity as a marketing opportunity.	“... we're going to do an inventory of NbS projects, but actually we call them EbA [Ecosystem-based Adaptation]. It's just like we're going to put an NbS label. So, we started having this conversation about how we name things. And the terminology we use actually has an influence in the way that people conceptualise the issue and the solutions.”	Interview: Gov-5
Ambiguity as a marketing opportunity.	“The NbS terminology can help ensure greater political attention and investment, therefore lead to greater initiatives on the ground towards conservation and restoration of ecosystems by directing greater finance. This is a welcome outcome.”	Interview: IGO-4
Recognition of ambiguity as a concern.	“We must also recognise that the term ‘nature-based solutions’ (or ‘natural climate solutions’), while offering a convenient short-hand, is broad and can be ambiguous. Many simply associate nature-based solutions with tree planting, which is not the case; in fact, in some instances, such as monoculture plantations, planting the wrong trees in the wrong places can undermine climate, biodiversity or sustainable development goals.”	Document: (Nature4Climate, 2019).
Addressing ambiguity through standards and safeguards.	“... we need strong safeguards, we need strong nature-based solutions, and we need to ensure that there’s real additionality in the nature-based solutions and that the nature-based solutions itself are not put at risk by increasing warming.”	Interview: IGO-1
Addressing ambiguity through standards and safeguards.	“To establish credibility and integrity, investments into natural climate solutions must be a part of a comprehensive strategy to reduce and avoid direct and indirect GHG emissions, while not being an excuse to continue business-as-usual.”	Document: (Arbour Day Foundation, 2019).

<i>Dangerous Distraction</i>	Carbon markets do not result in a net reduction of carbon emissions.	“there’s lots of methodological problems with using a very fluvial flow of carbon in biomass and using that as an offset for very fixed emissions from fossil fuels.”	Interview: IPO-6
	Concerns over private sector engagement in NbS.	“... the danger is that the private sector will play a role of going ‘woo-hoo! I can defer my emissions reductions challenges by just getting out there and planting a few more trees!’ And that is a huge danger point.”	Interview: NGO-2
	Concerns over private sector engagement in NbS.	“So, you and I find yourself on the same table with Shell, and Shell is just there to defend Shell, you’re there together with governments, etcetera, to address a global problem. And Shell will pretend that they are also doing that but, in the meantime, they are just there defending Shell ... So that’s why we think the corporate capture of policymaking is one of the biggest reasons why we are ... failing on global environmental governance. You see just everywhere that the corporations have totally taken over the debate, and they’re shaping the debate in a way that is very attractive for them and leaving out what is not attractive to them.”	Interview: IPO-6
	Human rights concerns and land grabs.	“Restoration initiatives promoted ever more loudly as Nature-Based-Solutions at the UN climate meeting thus risk expanding a land grab from the forest onto a much wider area of land under peasant agriculture.”	Document: (World Rainforest Movement, 2020).
	Rights-based approaches.	“Climate action in land must be developed in consultation with local and Indigenous communities and build on their traditional knowledge. Investment in community resource rights is often the most critical factor in securing resilience and robust mitigation outcomes.”	Document: (CLARA, 2019).
	Ambiguity as a flaw.	“... we also note that the term ‘nature-based solutions’ lacks clear definitions or criteria and can include activities that do nothing to advance real climate solutions.”	Document: (ECO/CAN, 2019).
	Alternate solutions aligning with Indigenous values and worldviews.	“We [Indigenous peoples] are done with the onslaught of damage caused by a worldview that is fixated on profit and extractivism. The only way to survive the climate crisis will be to root out the capitalist and colonial value systems and make space for Indigenous values and ways of knowing to bring forth meaningful system change. The Paris Agreement	Document: (Indigenous Climate Action, 2019).

and Rulebook can provide support for this shift by recognizing carbon markets and nature-based solutions cannot create the solutions necessary to survive the climate crisis.”

Appendix B List of Documents Analysed (Chapter 2)

<i>No.</i>	<i>Title</i>	<i>Year</i>	<i>Author</i>	<i>Author Group</i>	<i>NbS Attitude</i>	<i>Narrative</i>	<i>Event</i>	<i>Link</i>
1	COP 25: The Time for Action is Now, The Time for Trees is Now	2020	Arbor Day Foundation	NGO	Enthusiastic proponent	<i>Leveraging the Power of Nature</i>	COP 25	https://bit.ly/3ueqtPY
2	"Nature-based Solutions": Biodiversity saving the climate	2020	Agence Française de Développement	Private Sector	Enthusiastic proponent	<i>Leveraging the Power of Nature</i>	COP 25	https://bit.ly/3KQmxef
3	Client Alert: a Year for Climate Action	2020	Baker & McKenzie	Private Sector	Enthusiastic proponent	<i>Leveraging the Power of Nature</i>	COP 25	https://bit.ly/3IPgепH
4	Youth Delegate Blog: Nature Based Solutions within the UN Climate Talks	2019	British Columbia Council for International Cooperation	Youth	Cautious supporter	<i>Leveraging the Power of Nature</i>	COP 25	https://bit.ly/3IJXBmR
5	As UN Climate COP launches in Madrid, activists in Chile demand rejection of neoliberal model and removal of Chile from COP presidency	2019	BiofuelWatch	Grassroots and Justice	Staunch critic	<i>Dangerous distraction</i>	COP 25	https://bit.ly/3u7rolw
6	ECO: The Casa de Papel Issue: "Natural	2019	Climate Action Network	Grassroots and Justice	Tentatively opposed	<i>Dangerous distraction</i>	COP 25	https://bit.ly/3AG3PkJ

	Ecosystems: A Real Solution to the Climate Crisis"							
7	Position: Climate and Biodiversity	2019	Climate Action Network	Grassroots and Justice	Enthusiastic proponent	<i>Leveraging the Power of Nature</i>	UNSG CAS	https://bit.ly/3INRj5P
8	Canada advanced climate action and remains committed to ambitious global action as United Nations Climate Change Conference concludes	2019	Government of Canada	National Government	Enthusiastic proponent	<i>Leveraging the Power of Nature</i>	COP 25	https://bit.ly/3KQnhQz
9	Unlocking Nature's Potential: Forests related Nature-based Solutions to address climate change and promote sustainable development	2020	Carbon Disclosure Product	Private Sector	Enthusiastic proponent	<i>Leveraging the Power of Nature</i>	COP 25	https://bit.ly/3G7X3W7
10	UN Climate Action Summit: China's Position and Action	2019	Government of China	National Government	Enthusiastic proponent	<i>Leveraging the Power of Nature</i>	UNSG CAS	https://bit.ly/3o4Smqa
11	CLARA statement at COP 25: Climate action in land, forests + other ecosystems	2019	Climate Land Ambition and Rights Alliance	Grassroots and Justice	Tentatively opposed	<i>Dangerous distraction</i>	COP 25	https://bit.ly/3u2JepH

12	Wrap up from Climate Action Summit in New York	2019	Climate Land Ambition and Rights Alliance	Grassroots and Justice	Cautious supporter	<i>Leveraging the Power of Nature</i>	UNSG CAS	https://bit.ly/35kMCBS
13	High Expectations from 'Nature Based Solutions' during the Climate Action Summit	2019	Climate Land Ambition and Rights Alliance	Grassroots and Justice	Cautious supporter	<i>Leveraging the Power of Nature</i>	UNSG CAS	https://bit.ly/3KQn8wp
14	COP 25 Madrid: Key Takeaways	2019	Carbon Market Institute	Private Sector	Enthusiastic proponent	<i>Leveraging the Power of Nature</i>	COP 25	https://bit.ly/3Aug0Bj [document has since been removed from the internet. A copy is shared here]
15	COP25 Climate Summit: Action must include decolonization and resistance	2019	-	Academics	Cautious supporter	<i>Leveraging the Power of Nature</i>	COP 25	https://bit.ly/3r2Ru77
16	European Parliament resolution on the 2019 UN Climate Change Conference in Madrid, Spain (COP 25)	2019	European Parliament	National Government	Enthusiastic proponent	<i>Leveraging the Power of Nature</i>	COP 25	https://bit.ly/32GGMKi
17	UN Climate Action Summit: Every silver lining has a raincloud	2019	Fern	Grassroots and Justice	Cautious supporter	<i>Leveraging the Power of Nature</i>	UNSG CAS	https://bit.ly/3ABtLhw

18	Does nature have the solutions we need to fight global warming?	2019	UN Environment Programme	IGO	Enthusiastic proponent	<i>Leveraging the Power of Nature</i>	UNSG CAS	https://bit.ly/3ADxlaY
19	What are nature-based solutions and why do they matter?	2019	Inter-American Development Bank	IGO	Enthusiastic proponent	<i>Leveraging the Power of Nature</i>	UNSG CAS	https://bit.ly/3r5kQSi
20	COP25: The Paris Rulebook and Article 6. Carbon Markets are not climate solutions.	2019	Indigenous Climate Action	Indigenous Group	Tentatively opposed	<i>Dangerous distraction</i>	COP 25	https://bit.ly/3r4zVni
21	IETA Launches “Markets for NCS Initiative” to Boost Climate Action	2019	International Emissions Trading Association	Private Sector	Enthusiastic proponent	<i>Leveraging the Power of Nature</i>	COP 25	https://bit.ly/3KPIaez
22	Nature-based solutions to climate change: stories from Chile	2019	International Institute for Environment and Development	NGO	Enthusiastic proponent	<i>Leveraging the Power of Nature</i>	COP 25	https://bit.ly/3rQgQUO
23	Time to team up with nature to adapt to climate change	2019	International Institute for Environment and Development	NGO	Enthusiastic proponent	<i>Leveraging the Power of Nature</i>	UNSG CAS	https://bit.ly/3rYHQS9
24	Momentum for nature-based solutions continues despite	2019	Nature4Climate	NGO	Enthusiastic proponent	<i>Leveraging the Power of Nature</i>	COP 25	https://bit.ly/3KNeteh

	disappointing UN climate talks							
25	Nature-Based Climate Solutions Opportunity for Latin America	2019	Natural Resources Defence Council (NRDC)	NGO	Enthusiastic proponent	<i>Leveraging the Power of Nature</i>	COP 25	https://bit.ly/3umbmo3
26	Week Two: UN Climate Talks Need to 'Kick Polluters Out' Now	2019	Oil Change International	Grassroots and Justice	Staunch critic	<i>Dangerous distraction</i>	COP 25	https://bit.ly/3AHcp2L
27	Natural-born climate commitments	2019	The Nature Conservancy	NGO	Enthusiastic proponent	<i>Leveraging the Power of Nature</i>	COP 25	https://bit.ly/3KQohnH
28	What happened at the 2019 UN Climate Action Summit?	2019	Tree Sisters	Grassroots and Justice	Cautious supporter	<i>Leveraging the Power of Nature</i>	UNSG CAS	https://bit.ly/3o7x1vY
29	Secretary-General's Climate Action Summit Track #6: Nature-based Solutions	2019	NBS for Climate Coalition	IGO	Enthusiastic proponent	<i>Leveraging the Power of Nature</i>	UNSG CAS	https://bit.ly/3r5UeR6
30	The Nature-Based Solutions for Climate Manifesto	2019	NBS for Climate Coalition	IGO	Enthusiastic proponent	<i>Leveraging the Power of Nature</i>	UNSG CAS	https://bit.ly/3r5Qijm
31	Political and financial support for new efforts to scale up use of nature-based solutions to be	2019	United Nations	IPO	Enthusiastic proponent	<i>Leveraging the Power of Nature</i>	UNSG CAS	https://bit.ly/3ixIe5s [document has since been removed from the internet. A copy is shared here]

	announced at Climate Action Summit							
32	Nature-Based Solutions to Address Climate Change	2019	UN Global Compact	IPO	Enthusiastic proponent	<i>Leveraging the Power of Nature</i>	UNSG CAS	https://bit.ly/34h3A3K
33	Nature-based solutions - parts of the solution to the climate crisis	2019	World Agroforestry	NGO	Enthusiastic proponent	<i>Leveraging the Power of Nature</i>	COP 25	https://bit.ly/3gaoNid
34	Natural climate solutions: the business perspective	2019	World Business Council for Sustainable Development	Private Sector	Enthusiastic proponent	<i>Leveraging the Power of Nature</i>	UNSG CAS	https://bit.ly/3u5qtlq
35	New name for old distraction: Nature-Based Solutions is the new REDD	2020	World Rainforest Movement	Grassroots and Justice	Staunch critic	<i>Dangerous distraction</i>	COP 25	https://bit.ly/3u68n2B

Appendix C Interview Schedule (Chapter 2)

Introduction:

- I'm interested in NbS, and how groups are engaging, or not engaging, with it. Can you tell me a bit about the nature of your work in relation to NbS?
 - How do you perceive of NbS, in your work?
 - Does this differ at all from the organization/institution that you represent?
- From your perspective, why is NbS an important topic to work on?
- What does "NbS" mean to you? How would you define Nature-based Solutions?

Main:

- In your experience, what are the various positions or perspectives about NbS that tend to play out/exist/be expressed in international settings like the UNFCCC COP 25?
 - Which of these perspectives would you say has the most influence in policy? Why do you think that is?
 - Who tends to be associated with these different perspectives?
 - (prompts if needed re: proponents or detractors and why...)
 - So, am I right that you would align yourself and your work with...
 - Are there any voices and/or perspectives that you think are missing?
- (If not already mentioned) I'm also interested in your views on the roles of two specific groups in the NbS conversation. What role, in your view, should the private sector play in this conversation?
 - What role, in your view, should local communities and Indigenous communities play?
 - Are these groups playing this role? If not, what factors or barriers are in place to prevent them from doing so?
 - (Potential follow up) What role should NbS play in urban areas? In rural areas?
- Shifting gears a bit now to ask about specific actions and policies. In your view, what are the most important NbS actions and policies to pursue right now?
 - (If not already mentioned) Some of the discussion around NbS seems to be associated with the implementation of carbon markets and offsets. What are your views around these kind of actions and policies as they relate to NbS?

- (Potential follow up) What are your views around the role of NbS in climate adaptation?
- Where do you hope to see the NbS conversation going in the future, in terms of the key gaps in NbS research and practice?
 - What needs to happen for the conversation to move there, if you don't think it is already?
 - Are there key voices or groups that need to be involved in this work? Who are they?

Closing:

- Was there anything you expected me to ask, that I didn't?
- What do you hope to learn from the results of this research? How could this research help you in your work?
- Is there anything you would like to clarify, or go back to?
- Can you think of any others with relevant knowledge and expertise that I should talk to?
- In addition to interviews, as part of my research I am conducting a document analysis to better understand the broader NbS conversation in international settings. I'm interested to know what, if any, documents you think have been influential in shaping or characterizing the NbS conversation in the international context?
 - (prompts if needed) some examples of documents that I am reviewing include op-eds, IPCC reports, grey literature from governments, civil society, the private sector, etc.
 - In what ways was this document influential? (referenced in plenaries, picked up by media, etc...)
 - Please do reach out later on, if you think of other documents after this interview.

Appendix D Interview Schedule (Chapter 3)

Introduction/place: Question pool – choose 1-3:

- Can you briefly introduce yourself?
- How long have you lived in [place of NbS Case Study project]?
 - *If interviewee lives outside of the project place, skip this question.*
- Can you tell me about your role with [NbS Case Study project]??

(Social) Goals:

What were the central goals of the project?

What kinds of goals related to social outcomes did you consider, or did other project collaborators consider in the development/planning of this project?

- (e.g., benefits/impacts related to human wellbeing including health, economies, cultures, livelihoods, education, etc.)?
- (If not already mentioned): did goals related to social outcomes change at all, or get added, throughout the implementation process?

Are there any goals related to social outcomes which were not considered, but that you think should have been? Which are those? Why do you think they were not considered?

- Examples of social factors: human health, economy and jobs, recreation and access to nature, cultural and spiritual values, safety and disaster risk reduction, food security, education and awareness, etc.

(Social) Outcomes and Success:

For you, what were the biggest successes in the context of this project?

Would you consider any of your successes to have social benefits? If yes, please describe/share more.

(if unclear, distinguish between personal successes, and reported successes in relation to the established goals)

- Did your understanding of success, as it relates to social benefits, change throughout the projects design and implementation? Why? How?

What factors, or enablers, led you to achieve (or consider) these social outcomes?

- (if not mentioned): Did partnerships play a role here? What sources of knowledge were helpful in considering social outcomes?

Lessons and NbS:

From your experience with this project, how would you characterize the potential of achieving “triple-wins”: addressing climate adaptation, biodiversity conservation, and human wellbeing together?

- Do you think this project has met that potential?
 - If yes: how so?
 - If not: what would need to change in order to do so?

I'm interested in Nature-based Solutions.

Are you familiar with this term?

How would you define it?

Do you think this project fits that definition? Why/why not?

What role, if any, do you see an NbS approach playing within the field of conservation in the near future?

- What role do you see an NbS approach playing in your local context?
- (in case they ask): NbS, as defined by IUCN (International Union for the Conservation of Nature), are *actions that protect, manage, or restore natural or modified ecosystems to address societal challenges (like climate change) while also enhancing biodiversity and human wellbeing.*

What needs to happen for an NbS approach to play that role within the field of conservation?

Reflecting back on this project, what (if anything) would you do differently if you were to do it over again?

- What stands out for you as key lessons for conservation adaptation projects broadly?

Verbal Survey Questions

I am interested in your views on the relative importance of (1) social, (2) climate and (3) ecological outcomes for conservation adaptation projects.

Please distribute 10 points between 1) social, (2) climate and (3) ecological outcomes based on their relative importance within this project. The most important is the one with most points.

Please distribute 10 points between 1) social, (2) climate and (3) ecological outcomes based on how important you believe they *should be* within projects like these in the future. The most important is the one with most points.

- Why did you decide to distribute the points the way you did?

Do you think the overall agreed importance of social outcomes among conservation adaptation practitioners will change in the future?

- Will become much more important
- Will become slightly more important
- The importance will not change
- Will become slightly less important
- Will become much less important
- I am not sure

If yes, how so? And why?

Closing:

- [Blue Sky Q]: Based on your experience with [NbS project], in an ideal future, how would you describe [place of NbS project]?
- Is there anything I have left out, or that you expected me to ask, that we didn't address?
- Is there anything you would like to clarify, or revisit to discuss further?
- Can you think of other people with relevant knowledge and expertise related to this project that I should talk to? If so, would you be willing and able to share information about this study that I will provide to you and, if they consent, share their name and contact information with me so I may invite them to participate?

Appendix E Interview Consent Form (Chapter 2)



a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Faculty of Forestry
Department of Forest Resources Management
2nd Floor, Forest Sciences Centre
2045 – 2424 Main Mall
Vancouver, B.C. Canada V6T 1Z4

Research Interview Consent Form **Big Ideas with Big Potential Impacts: Examining how Nature-based Solutions are (Re-) Shaping** **Relations of Conservation Governance**

I. STUDY TEAM

Principal Investigator: Dr. Shannon Hagerman, Associate Professor, Faculty of Forestry

Co-Investigator: Marina Melanidis, Master’s student, Forest Resource Management

III. INVITATION AND STUDY PURPOSE

The aim of this study is to better understand the shape of the conversation surrounding “nature-based solutions” as it is occurring in international environmental governance settings. We are interested in the range of perspectives of those with expertise in the nature-based solutions field. As someone who has been engaging in these conversations, your views will be valuable as we attempt to characterise the nature-based solutions discourse.

IV. STUDY PROCEDURES

If you decide to participate in this study, here is what will happen:

- In a single interview, we will ask you several questions about your career as it relates to nature-based solutions, your understanding of the key debates associated with nature-based solutions in international settings, key events and/or documents that have impacted the nature-based solutions conversation, what key gaps you see in research and practice, and where you hope to see the conversation going in the future.
- The interview will take place online through videoconferencing (we will use the online platform Zoom), conducted by the Co-Investigator, and will be recorded directly to the Co-Investigator’s personal laptop (not to the Zoom cloud storage) where it will be stored. Recordings will not be shared with anyone outside of the Principle Investigator without expressed permission from the interviewee. A written transcript of the interview, developed by the Co-Investigator, will be shared with the Principal Investigator.
- Please be aware that Zoom servers are located outside of Canada and Zoom stores users’ names and usage data outside of Canada. You can protect your identity and increase the protection of your personal information if you do not use your actual name in Zoom, and instead use a nickname. You may also keep your camera turned off, if you wish.
- If you prefer not to be recorded, the Co-Investigator will instead write notes throughout the interview.

- The interview will be approximately 1 hour long.
- You will have an opportunity to clarify any ideas or points that you have shared before the interview ends.

Participation in any of the above is voluntary. If you agree to participate in the study and then decide that you do not wish to continue, you may withdraw at any time. You may refuse to discuss any questions during the interview. Again, your engagement in this study will only take place after you consented to it (see below for ensuring confidentiality). If you wish to withdraw from the study, any information that you provided will not be used.

V. STUDY RESULTS

This interview is part of a research study that makes up the Co-Investigator's Master's thesis (a public document). Findings from this research will be openly accessible through the University of British Columbia's digital repository. It will also contribute to research that will be submitted for publication in an academic journal. The results of this study have the potential to provide new insights as to how nature-based solutions are being characterized and understood by diverse actors in international environmental governance settings, identify gaps in the conversation, and highlight best practices that support effective projects for climate, biodiversity, and human communities.

VI. POTENTIAL RISKS OF THE STUDY

No psychological, cultural, privacy or confidentiality risks are anticipated or intended through this study. We do not think there is anything in this study that could harm you, or be bad for you. Should you feel uncomfortable at any time during the interview, you do not have to participate, you have the right to stop the interview and/or inform the researcher about information you do not wish to have included in the final documentation.

VII. POTENTIAL BENEFITS OF THE STUDY

You may benefit from this study by having an opportunity to discuss and reflect on your experience with the nature-based solutions conversation in international settings. Additionally, policymakers, industry and other stakeholders may benefit in the future from what is learned about how nature-based solutions are currently being understood in these contexts. The knowledge and experience that you share will contribute to the identification of best practices for nature-based solutions and has the potential to help improve relevant policy and projects in the future. This could benefit yourself and others who are engaging in these conversations, resulting in actions that are more effective for addressing climate change, biodiversity loss, and human wellbeing.

VIII. CONFIDENTIALITY

Only the researchers listed on page one of this form will have access to the information collected. At no time will your name appear on any research report. All documents will be identified only by a code that refers to the overall research project and stored on the co-investigator's computer hard disk. The file will require a password to access that is only known by the co-investigator. The identity of all participants will be kept confidential, and individuals will be referred to only by the actor group they represent (e.g., "academia" or "civil society"). Please note that your confidential responses may be identifiable if a reader is able to link

them to your public record. A copy of your transcript and the results will be provided to you via e-mail at your request. Similarly, all documents and information collected will be identified only by code number, encrypted and kept in a locked cabinet at UBC, and password protected computer files password, for at least five years.

IX. PAYMENT

We will not pay you for the time you take to be in this study.

X. CONTACT FOR INFORMATION ABOUT THE STUDY

For any questions you may have about the study, please contact the Principal Investigator or the Co-Investigator. The names and telephone numbers are listed at the top of the first page of this form.

XI. CONTACT FOR COMPLAINTS

If you have any concerns or complaints about your rights as a research participant and/or your experiences while participating in this study, contact the Research Participant Complaint Line in the UBC Office of Research Ethics at 604-822-8598 or if long distance e-mail RSIL@ors.ubc.ca or call toll free 1-877-822-8598.

XII. PARTICIPANT CONSENT AND SIGNATURE PAGE

Taking part in this study is entirely up to you. You have the right to refuse to participate in this study. If you decide to take part, you may choose to pull out of the study at any time without giving a reason and without any negative impact on your employment.

*Your signature below indicates that you have received a copy of this consent form for your own records.
Your signature indicates that you consent to participate in this study.*

Participant Signature

Date

Printed Name of the Participant signing above

Appendix F Interview Consent Form (Chapter 3)



a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Faculty of Forestry
Department of Forest Resources Management
2nd Floor, Forest Sciences Centre
2045 – 2424 Main Mall
Vancouver, B.C. Canada V6T 1Z4

Research Interview Consent Form **Big Ideas with Big Potential Impacts: Examining how Nature-based Solutions are (Re-) Shaping** **Relations of Conservation Governance**

I. STUDY TEAM

Principal Investigator: Dr. Shannon Hagerman, Associate Professor, Faculty of Forestry

Co-Investigator: Marina Melanidis, Master’s student, Forest Resource Management

III. INVITATION AND STUDY PURPOSE

The objective of this study is to further understand the views of conservation adaptation practitioners on the social outcomes of conservation projects, specifically of projects that could be classified as “nature-based solutions”. We are interested in the perspectives of individuals have been involved in such projects. As someone involved with the project “[Project title and year here]”, funded by the Wildlife Conservation Society’s Climate Adaptation Fund, your perspective will be valuable for advancing the practice of nature-based solution efforts.

IV. STUDY PROCEDURES

If you decide to participate in this study, here is what will happen:

- In a single interview, we will ask you several questions about your professional and/or community background, your involvement with the project, your understanding of the goals, outcomes, and successes of the project, and what you have learned.
- The interview will take place online through videoconferencing (we will use the online platform Zoom), conducted by the Co-Investigator, and will be recorded directly to the Co-Investigator’s personal laptop (not to the Zoom cloud storage) where it will be stored. Interviews could also take place over the phone, in which case they will be audio recorded. Recordings will not be shared with anyone outside of the Principle Investigator without expressed permission from the interviewee. A written transcript of the interview, developed by the Co-Investigator, will be shared with the Principal Investigator.
- Please be aware that Zoom servers are located outside of Canada and Zoom stores users’ names and usage data outside of Canada. You can protect your identity and increase the protection of your personal information if you do not use your actual name in Zoom, and instead use a nickname. You may also keep your camera turned off, if you wish.
- If you prefer not to be recorded, the Co-Investigator will instead write notes throughout the interview.
- The interview will be approximately 45 minutes long.

- You will have an opportunity to clarify any ideas or points that you have shared before the interview ends.

Participation in any of the above is voluntary. If you agree to participate in the study and then decide that you do not wish to continue, you may withdraw at any time. You may refuse to discuss any questions during the interview. Again, your engagement in this study will only take place after you consented to it (see below for ensuring confidentiality). If you wish to withdraw from the study, any information that you provided will not be used.

V. STUDY RESULTS

This interview is part of a research study that makes up the Co-Investigator's Master's thesis (a public document). Findings from this research will be openly accessible through the University of British Columbia's digital repository. It will also contribute to research that will be submitted for publication in an academic journal. The results of this study have the potential to provide new insights as to how social outcomes can be incorporated into nature-based solutions projects on-the-ground, and identify best practices that support effective projects for climate, biodiversity, and human communities.

VI. POTENTIAL RISKS OF THE STUDY

No psychological, cultural, privacy or confidentiality risks are anticipated or intended through this study. We do not think there is anything in this study that could harm you, or be bad for you. Should you feel uncomfortable at any time during the interview, you do not have to participate, you have the right to stop the interview and/or inform the researcher about information you do not wish to have included in the final documentation.

VII. POTENTIAL BENEFITS OF THE STUDY

You may benefit from this study by having an opportunity to discuss and reflect on your experience with nature-based solutions projects. Additionally, policymakers, industry and other stakeholders may benefit in the future from what is learned about the incorporation of social outcomes into the implementation of nature-based solutions projects. The knowledge and experience that you share will contribute to the identification of best practices for nature-based solutions and has the potential to help improve these projects in the future. This could benefit yourself and others who are involved in and/or affected by these projects, resulting in actions that are more effective for addressing climate change, biodiversity loss, and human wellbeing.

VIII. CONFIDENTIALITY

Only the researchers listed on page one of this form will have access to the information collected. At no time will your name appear on any research report. All documents will be identified only by a code that refers to the overall research project and stored on the co-investigator's computer hard disk. The file will require a password to access that is only known by the co-investigator. The identity of all participants will be kept confidential, and individuals will be referred to only by the actor group they represent (e.g., "project staff" or "community member"). Please note that your confidential responses may be identifiable if a reader is able to link them to your public record. A copy of your transcript and the results will be provided to you via e-mail at your request. Similarly, all documents and information collected will be identified only by code number,

encrypted and kept in a locked cabinet at UBC, and password protected computer files password, for at least five years.

IX. PAYMENT

We can offer a modest honorarium of CDN\$100.00.

X. CONTACT FOR INFORMATION ABOUT THE STUDY

For any questions you may have about the study, please contact the Principal Investigator or the Co-Investigator. The names and telephone numbers are listed at the top of the first page of this form.

XI. CONTACT FOR COMPLAINTS

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