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PERSPECTIVE

Disconnection from nature: Expanding our understanding of human–nature relations

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Abstract

1. The human relationship with nature is a topic that has been explored throughout human history. More recently, the idea of connection to nature has merged as an important transdisciplinary field of study. Despite increased scholarly attention to connection to nature, the notion of disconnection from nature remains under-theorized and understudied.
2. In this perspective article, we argue for a more comprehensive understanding of disconnection from nature to strengthen theories of human-nature relationships that goes beyond individual relationships and considers social and collective factors of disconnection, including institutional, socio-cultural and power dimensions.
3. Drawing on case insights, we present the 'wheel of disconnection' to illustrate how disconnections from nature manifest across individual or societal meaning-making processes, thereby problematizing existing research that seeks to create dualisms between human positive and negative impacts on the environment in isolation from cultural or political contexts.
4. We do not seek to discount research or important practical efforts to foster an individual's connection to nature by elevating disconnection. Instead, we hope that creating greater awareness and understanding of disconnection will be able to guide opportunities going forward for strengthening a connection to nature along a continuum from the individual to the social.

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KEYWORDS
connection to nature (C2N), disconnection, ecosystem services and disservices, environmental education, meaning-making

1 | INTRODUCTION

Catastrophic global climate change, rapid loss of biodiversity (the sixth mass extinction), pandemics (e.g. COVID-19), accelerations in consumption and use of natural resources (e.g, heavy metal mining), human conflict (e.g. refugee crisis and resource-driven disputes) and other social-ecological problems demonstrate that humans live beyond planetary limits (e.g. IPCC, 2021; IPBES (Brondizio, Díaz, et al., 2019); McPhearson et al., 2021; Rockström et al., 2009). Living beyond limits has adverse impacts on good quality of life (Díaz et al., 2019) and ecosystem health (Persson et al., 2022). Reversal of such negative trends requires rapid transformations toward sustainability (McPhearson et al., 2021). Furthermore, these trends reflect a critical tension between human actions and institutional arrangements that, on the one hand, promote connection to nature while, on the other hand, may help structure disconnection. For example, many educators know about research and curriculum to support connection to nature. However, institutional arrangements in schools appear to shrink the actual opportunity for nature experience, as evidenced by factors such as shortened recess, stringent safety guidelines, and efforts to improve school achievement and test scores (Romero & Woodward, 2015). Thus, it is critical to explore the dimensions of connection and disconnection and consider which factors reproduce them. This approach, in turn, implies the need for a multidimensional understanding of disconnection and its position in connection to nature scholarship. One way to study this approach to sustainability transformations is using the concept of connection to nature (C2N). Indeed, connectedness to nature has been presented as a *leverage point* for sustainability: fostering connections at specific places in a complex system can have wide-ranging influences (Abson et al., 2017; Chan et al., 2020; Fischer & Riechers, 2019).

Much scholarly attention has been paid to developing a better understanding of C2N; various concepts have been developed to explore subjective or self-reported connections to nature and possible pro-environmental behavioural outcomes (Capaldi et al., 2014; Mayer & Frantz, 2004; Tam, 2013). Engaging with the inner world of emotions and identities has been considered a critical way to assess possibilities for rapid transformations toward sustainability (Ives et al., 2017). However, in this burgeoning connectedness scholarship, the concept of disconnection and the gradient between connection and disconnection have been largely overlooked. Moreover, a breadth of societal organization is also largely overlooked. The multiple ways individuals and groups experience disconnection from nature, for example through anxiety, ecosystem disservices, fear of nature, human-wildlife conflicts, nature deficit disorder, crime, virtual nature experiences and radical landscape change/solastalgia are poorly represented in connection to nature, place attachment, and relational values scholarship (Beyer et al., 2014; Elliott et al., 2020; Escobedo et al., 2011; Galway et al., 2019; Ives et al., 2016; Lapointe, 2020; Soga & Gaston, 2022).

This lack of recognition of the complexity of the gradient between connection and disconnect makes our understanding of C2N incomplete. For example, there is the possibility that we mislabel certain nature fears as evidence of disconnection when they may reflect intimate knowledge of nature or an innate or learned response to risk, a possible connection (Beery et al., 2015). Indeed, we are unaware of any research that has attempted to synthesize multiple types of disconnection, when and how disconnection and connection manifest in different forms of nature, implications of greater disconnection understanding for transformations toward sustainability, nor underlying disconnection conditions.

A look at the literature on ecosystem services may also be helpful in efforts to consider disconnection. This literature has, for example, synthesized ecosystem disservices and identified the major clusters of disservices, such as ecological, economic, human health, psychological, and general (Von Döhren & Haase, 2015). The media representations of these disservices highlight weather-related events, fears and risks, aesthetic issues, inhibition of activities, and ecosystem functions that cause harm (Lyytimäki, 2015). This work focuses on the adverse effects of ecosystem processes on human physical/mental health, the economy, and ecological impact (see Liu et al., 2018, for an overview). The lack of study and theory to understand disservices and disvalues of nature has been observed (Lliso et al., 2022). An example of this gap is the insufficient consideration of the gradient complexity of services and disservices in the ecosystem service literature (similar to the noted lack of gradient complexity between connection and disconnection). In response to this gap, Saunders and Luck (2016) emphasize a holistic approach that recognizes context in considering ecosystem function, specifically noting that an ecosystem function can be a service, disservice, or benign depending upon the context.

Soga and Gaston (2022) have considered the outcomes of biophobia, disgust, and fear through studies of animal perception, human-wildlife conflict and environmental education. Their examination provides insight into negative interactions with nature and contributes to a better understanding of individual disconnection from nature. Furthermore, Soga and Gaston (2022) help bridge between focusing on the individual's relationship and those factors that have a broad and collective aspect. For example, they describe the 'opportunity effect' as factors in the environment of a person that make a particular behaviour possible. They also identify collective elements that shape opportunities, such as socioeconomics and urban infrastructure. The review plays an important role in helping to broaden our awareness of disconnection, including relational disvalues and

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negative sensory interactions, along with links to collective forces that help shape these experiences of nature.

1.1 | Describing disconnection

An explicit definition is not provided to prevent unnecessarily limiting the consideration of disconnection from nature at the outset of our inquiry. We can, however, gain insight from definitions such as that proposed by Brondizio, Díaz, et al. (2019), where nature is viewed as stocks and flows of materials, organisms, or energy, while also recognizing nonmaterial elements. This recognition of the non-material includes nature's contributions to people such as inspiration, joy, or other relational values, which are embedded non-instrumental relationships between people and nature (Chan et al., 2016; Himes & Muraca, 2018; Teff-Seker et al., 2022). Thus, from this general perspective of nature, we may broadly describe disconnection *as the lack of awareness or disregard for human identity in material elements and within flows, energy and other nonmaterial elements and values that constitute nature*. We assert that this disconnection can be traced to many factors, such as ideological orientations, political relations, sociocultural norms and institutional arrangements that prevent awareness or create disregard for people as part of nature. It is also important to clarify that disconnection can be (re)produced and experienced across a spectrum from the individual to the societal.

Moreover, we understand individual identity and agency as shaped by social organization. For example, studies have shown that social bonding mediated by interactions with nature extends beyond the site of experience and strengthens relationships at both personal and collective levels (McMillen et al., 2016). This co-constitutive nature of individual and social implies that disconnection from/to nature is not reducible to the level of the individual or group. Thus, we understand disconnection to be produced and experienced through a nonlinear, recursive process via the individual and societal interrelation. We take inspiration from landscape planning theory; one strand of research in this field focused on how landscape aesthetics could be assessed in a way that applies not just to individuals but to larger social groups—at best, society in general (Hermes et al., 2018).

We recognize that disconnection from nature is socially constructed and has multiple, often contested meanings subject to much philosophical discussion and debate (see, e.g. Castree, 2014; Haraway, 2008; Muraca, 2011; Pascual et al., 2021). Moreover, we also recognize that the very idea of human-nature disconnection is embedded within specific ontological frames, for example, European-based religious and philosophical traditions (Plumwood, 2002; Todd, 2016). Around the world, particularly among indigenous and First-Nation peoples, many ontological orientations do not make a distinction between humans and their world (De la Cadena, 2015; Watts, 2013). Instead, it is through projects of European colonialism that distinctions between humans and nature have been introduced through political domination, reeducation programs, cultural hegemony, and forced labor and genocide (Whyte, 2018a, 2018b; Yusoff, 2018). We believe it is important to recognize this particular origin of disconnection from nature and how colonial projects have incorporated large swaths of the world into specific ontologies and epistemic traditions that posit and reproduce disconnection. At the same time, we recognize that we are all scholars hailing from European or white settler-colonial nations and, in many instances, operate within an intellectual tradition rooted in assumptions of human-nature separateness, a manifestation of disconnection. We consider it a critical intellectual project to engage and complicate ideas of connection and disconnection within this tradition. Therefore, while acknowledging the historical and geographic specificity of the idea that humans and nature are separate, we proceed from the normative assumption of this separateness to better understand how a complex gradient of connection and disconnection from nature takes shape within our shared ontological frame.

Even within this shared worldview, it is likely that the structure, content, and intensity of disconnection will vary according to the framing of nature within specific contexts. Additionally, the disconnection framework will vary according to the research paradigms. On one end of the spectrum, there is a biological and evolutionary tendency for dualism and bifurcation of humans and nature, characterized by an ontological distinction between subject and object. At the other end of the spectrum, human-nature relations are viewed as a 'unified macroprocess' (Rescher, 1996), consistent with pluricentric worldviews that focus on reciprocal, interdependent, intertwined, and embedded relationships between humans and other-than-human beings (Anderson et al., 2022; Gould et al., 2019; Raymond et al., 2017). In this embodied view, subject and object cannot be disentangled given the dynamic web of relations among mind, culture, body, and environment (Kaaronen, 2018; Raymond et al., 2017).

1.2 | The aim of the paper

While respect for epistemic pluralism is consistent with a postnormal view of sustainability science, the nondualistic view on human-nature relationships likely supports the needed transformation toward sustainability. However, our world predominantly endorses the bifurcated view, and as a result, we see particular kinds of disconnection manifest. Therefore, in this paper, we seek to explore the range of 'disconnections' that can be represented through substance philosophy, where there is an emphasis on discrete individuality, implicit separation of humans/society and nature/environment emphasizes the classificatory stability and passivity (things acted upon) (see Kaaronen, 2018 for more information). This paper aims to better understand the multiple and sometimes competing ways humans disconnect from nature. We propose a conceptual framework for understanding the multiple perspectives of disconnections from nature based on insights from peer-reviewed literature and, in particular, Ives et al.'s (2018) framework of human-nature connectedness. We then show the limits of this individualistic perspective by situating disconnection as produced through social and institutional relations across the breadth of societal organization. Diverse

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societal organization highlights a spectrum from the individual to a more collective organization, such as consideration of sociocultural configurations, political relations, and political organization. We then use case study examples to explore this complexity.

2 | DIMENSIONS OF DISCONNECTION

From the underlying interest in the gradient between connection and disconnection, this section uses the comprehensive review of human-nature connection by Ives et al. (2018) as a starting point for carefully considering a deeper understanding of disconnection. Combining this review of human-nature connection with the working definition of disconnection from nature noted in the introduction, we will more fully develop a description of disconnection. Table 1 provides a structure for initial exploration, comparing connection and disconnection using key dimensions of connection from the Ives et al. (2018) review, along with details and elaboration to help clarify the distinctions.

Table 1 presents an overview of the different forms of disconnection from nature at the individual level that emerged from our review of the literature. It not only functions to identify disconnections through mirroring the dimensions of connections, material, experiential, cognitive, emotional and philosophical (Ives et al., 2018) but it also helps to discuss conceptual issues arising from discussing the connection–disconnection gradient. Table 1 is not meant to be comprehensive but rather to provide an overview of disconnection from key dimensions of connectedness; it needs to be noted that the table's organization does not acknowledge a potential overlap in categories, many of which exist. For example, within the 'experiential' domain, disconnection due to extinction of experience and nature-deficit disorder is one descriptor. Simultaneously, the chart describes the emotional dimension and describes disconnection due to biophobia, fear and disgust; these two dimensions may very well overlap in multiple ways, for example consider the phenomena of stranger danger (Louv, 2005), that is, social fears and increased child security in specific cultures that prevent regular access to nature experience (Skar et al., 2016). Another example of this overlap can be noted in how the experiential and cognitive dimensions blur in terms of the idea of a societal extinction of species' the loss of nature experience and fading of cultural knowledge and collective memory of species, often referred to as shifting baseline syndrome (Jarić et al., 2022; Soga & Gaston, 2018).

A careful review of this table/method of organizing a comparison reveals aspects of disconnection not apparent in a mirroring of the connectedness framework, each related to the social and institutional organization in processes of individual and social meaning-making. Meaning-making processes refer to how people interpret their social and material worlds with ideas that can be communicated to others (Lukianova & Fell, 2015). These processes bring individuals and social groups together by relying on shared forms of social or institutional organization to generate and transmit meaning (Kitayama, 2002). Meaning-making informs our understanding of disconnection as sensitive to sociocultural factors, attentive to the role of institutions in disconnection, and affected by political expressions/power relations. An example of the spectrum of meaning making can be found within the scholarship of climate change adaptation. The topic of an intertwined individual and social action is already widely addressed (e.g. Newell et al., 2021; Poortinga et al., 2021). Whitmarsh et al. (2021) draw upon the work of Nielsen et al. (2021) to remind us that despite behaviour change as often being narrowly conceived as individual-level consumer action, these individual-level consumer actions must be understood as extending across a multitude of human contexts, 'from members of communities, participants in organizations, and as citizens who can influence policy' (Whitmarsh et al., 2021, p. 1). Seemingly, disconnections are extending across many human contexts, from individual to social meaning-making. Section 2.1 will consider the dominance of the individual perspective while also broadening to more social and institutional considerations which are not fully captured by Table 1's mirroring of Ives et al. (2018) framework.

2.1 | From the individual perspective to social and institutional organization

In approaching human-nature relatedness from the perspective of disconnection, we find that a significant aspect of how connectedness to nature is approached emphasizes individual processes across all five dimensions used by Ives et al. (2018). An example is Table 1, which provides an overview of the analytical scale for connection to nature, mainly at the individual level. Another example of the dominance of the individual scale for conceptions of connectedness to nature is the breadth of connectedness theories (Beery & Wolf-Watz, 2014), used in environmental education and overlapping fields (environmental psychology, landscape architecture, human geography, outdoor recreation), such as connectedness to nature and nature relatedness (Mayer & Frantz, 2004; Nisbet et al., 2009). These theories focus on the individual and personal identity regarding the human relationship with nature. This theoretical emphasis is also seen via the tools used to measure connection to nature. The Practitioner Guide to Assessing Connection to Nature provides 11 tools for assessing connectedness for various audiences (Salazar et al., 2020, 2021). The application of these tools is often described in terms of an individual measurement, for example, in the following text of the guide: 'An environmental educator might want to document differences in a child's relationship with nature before and after participating in a summer camp' (Salazar et al., 2020, p. 7). Although individual assessments can be aggregated for a broader group-level analysis, it should be noted that these efforts are more about the educational intervention and less about defining or describing disconnection; the focus is usually on an individual-level analysis based on an educational/experimental intervention.

One final example of the dominance of an individual perspective in considering the human relationship with nature can be seen in the language used around environmental behaviour communication and

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TABLE 1 From connection to the disconnection perspective

Connection (Ives et al., 2018)		Example of disconnection at the individual level		
Dimension	**Description**	**Type**	**Elaboration**	**Sample literature**
Material	Consumption of goods/materials from nature (e.g. food, fibre)	Disconnection due to food deserts, food illiteracy and consumption of ultra-processed foods	Reduced consumption of natural food is studied with a focus on health and food access, food knowledge, and food consumption	Gosliner et al., 2018; Truman et al., 2017
		Disconnection due to decoupling of meat production from land	Decoupling refers to the phenomenon of livestock production losing its local land base. Livestock feed is increasingly imported from distant places, causing social and environmental harm both in the sending countries (e.g. deforestation) and in the receiving countries (e.g. nitrogen pollution) and disconnecting people spatially from food production	Naylor et al., 2005; Pikaar et al., 2018
Experiential	Direct interaction with natural environment	Disconnection due to technologically transformed experiences of nature such as simulated nature experiences (e.g. VR experiences)	Reduced direct multisensory experiences of nature. Although simulated nature can promote restoration, positive mood, creativity, and learning, or offer tourism experiences, it is still limited to visuals and sounds (and dismiss other senses), lacks the in-depth connection to nature, cardiovascular or immune system-related health benefits, and typically also misses the social aspect of being in nature	Lähtevänoja et al., 2020; Zabini et al., 2020
		Disconnection due to extinction of experience and nature deficit disorder	The trend of decreased outdoor experience leading to less direct interaction with natural environments and thereby extinction of experience and nature deficit disorder	Soga & Gaston, 2016, 2018; Pyle, 1993
Cognitive	Knowledge or awareness of the environment and attitudes/ values toward nature	Disconnection due to ecological illiteracy and loss/ lack of biocultural memory	Deterioration or lack of ecological knowledge on species, or social and ecological (biocultural) memory carriers regarding for example gardening and local food	Andersson & Barthel, 2016; Orr, 1992
		Disconnection due to lack of knowledge about outdoor recreation behaviours and skills	Knowledge about opportunities and guidelines/ outdoor ethics for outdoor recreation is central to work on leisure constraints, recreation ecology, and trail etiquette	Lawhon et al., 2013; Goh, 2020
Emotional	Feelings of attachment to or empathy toward nature	Disconnection associated with solastalgia	Solastalgia is the emotional disconnection to a place that has been significantly altered due to disruptive environmental change. Here disconnection and connection are a continuum and not opposites because the distress captured within the concept of Solastalgia is rooted in the person's strong connection to the place that turns to disconnection when it is altered. It is situational and context-dependent	Albrecht, 2012; Galway et al., 2019
		Disconnection due to Biophopia, fear and disgust	Negative attitudes to nature are often associated with fear and dislike of nature	Soga & Gaston, 2020; Zhang et al., 2014

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TABLE 1 (Continued)

Connection (Ives et al., 2018)		Example of disconnection at the individual level		
Dimension	**Description**	**Type**	**Elaboration**	**Sample literature**
Philosophical	Perspective or world view on what nature is, why it matters and how humans ought to interact with it	Disconnection due to distanced or indifferent relationship to nature	Distanced relationships to nature are studied with a focus on, for example wildlife value orientations where 'distanced' individuals are less interested in wildlife and wildlife-related issues	Teel et al., 2010; Manfredo, Berl, et al., 2021; Manfredo, Teel, et al., 2021
		Disconnection due to changing lifestyles (alienation from nature as 'cultural advancement')	Modern urban living, industry and technology, and associated behaviour and intellectual trends have made us think, feel and act in ways that make sense only if we are not really part of a wider nature	Hailwood, 2016; Vogel, 2015
		Disconnection due to human/nature decoupling	A worldview that sharply divides culture from nature, humans from the world	Plumwood, 1993; Salleh, 1984

climate change. Shove (2010) highlights communication strategies from climate change behaviour messages that focus on individual-level behaviour, ignoring the need for broader institutional/organizational behaviour. A good example of this can be seen in the language around one's 'carbon footprint', that is, successful PR campaigns that emphasize an individual's contribution to carbon emissions to shift consideration away from the emissions of institutions and organizations, such as giant oil conglomerates (Kaufman, 2022). The New York Times published an opinion article in 2021 entitled 'Worrying About Your Carbon Footprint Is Exactly What Big Oil Wants You to Do' (Schendler, 2021), detailing how a focus on individual behaviour change does little to promote broader systemic change.

Despite the individual focus, we acknowledge that people's connectedness to and experience in nature is embedded in larger social, institutional, and political contexts influencing opportunities for and expressions of connections to nature (Andersson et al., 2022) as well as concerning socio-ecological contexts (Kendal & Raymond, 2019). For example, Manfredo, Berl, et al. (2021) and Manfredo, Teel, et al. (2021) found that wildlife values in the United States are shifting from domination (treating wildlife as resources to be used for human benefit) to mutualism (seeing wildlife as part of one's social community and deserving of rights like humans). These shifts were partly explained by immigration into urban areas of people sharing mutualism values, increased socioeconomic development and reduced contact with and perceived threats of nature. Concerning cultural values, Kitayama et al. (2010) noted that as migrants moved westward in the United States during the 18th and 19th centuries, a cultural value shift occurred from interdependence values oriented toward social happiness and social relations to independence values oriented toward personal happiness and egocentricity. This cultural value shift was reflected in the acceptance of new technologies, new institutional arrangements, and the adoption of new customs, including formal rules. In summary, multilevel interactions between individual and social meaning-making processes shape the formal and informal rules we live by and the ways we value nature.

Within the literature on connectedness to nature, less focus has been on the role of society and institutions, with notable exceptions, such as social representation theory (Buijs et al., 2012; Figari & Skogen, 2011) or mental models (Medin et al., 2007). In addition, many organizations, such as E-NGOs, try to combat disconnections by offering educational programs and outdoor experiences. The social context in such programs is often essential for social meaning-making (Beames & Atencio, 2008). Furthermore, opportunities to experience nature are strongly influenced by green space policies in cities and beyond (Soga & Gaston, 2016).

Consequently, policies beyond the individual significantly impact individual and social (dis)connections to nature. Experiential and cognitive disconnections can arise from social changes in daily life and landscapes that have resulted in increased hardscapes, sedentism, and time indoors (Chawla, 2020; Kesebir & Kesebir, 2017). At the same time, emotional and philosophical disconnections can be reproduced and spread through forms of mass communication and shared deliberation, from social media to multinational institutions (West, 2006). Throughout all these types of disconnection, systemic inequalities based on differences in race, ethnicity and gender, for example, also serve to influence the opportunities for and perceptions of connection to nature available to a given individual (Avila, 2018; Finney, 2014; Heynen et al., 2006; Sonti et al., 2020).

A return to the description of disconnection offered earlier in this paper is warranted. We describe disconnection 'as a *lack of awareness or disregard for human identity in the material elements and within the flows, energy and other nonmaterial elements and values that constitute nature*'. This definition is still useful but can be further developed by clarifying what individual and social disconnection means. Ultimately, individual disconnection is the lack of a sense of identity or belonging coupled with one's perception of nature, whereas societal disconnection looks at the collective, institutional and social forms and drivers of this disconnection. We wish to stress that disconnection results from interrelated individual and social forms and drivers. For example, fear is both a form and a driver that is related to

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both individual and social processes. Fear to walk in the forest is an individual feeling (emotional disconnect), but also a driver that might result in philosophical disconnect (or visa/versa), but it might as well be a sociocultural form of disconnect relating to absent/present of other people in the forest, which again also might be understood as a driver behind the disconnect. Therefore, the social and individual levels of meaning-making function as interrelated forms and drivers of disconnection from nature.

This consideration of the ways disconnection from nature is produced across the breadth of a social and institutional organization reveals at least three aspects of disconnection not apparent in a mirroring of the connectedness framework:

1. Disconnection must include relevant social-cultural factors;
2. The role of institutions/organizations in disconnection must be considered;
3. Disconnection is affected by political expressions/power relations.

These ideas are developed in detail in the following three sections.

2.2 | Disconnection produced and reproduced by sociocultural factors

As mentioned in the previous sections, we claim that the connection to nature literature primarily addresses the individual level of connection to nature as a result of overlooking the role of cultural norms in structuring interaction (Berger & Luckmann, 1966; Gelfand et al., 2011; Hodgson, 1988; Searle, 2010). These norms are internalized during socialization and become part of a person's identity and form what they think is right to do. According to Hall and Du Gay (1996; cf. Skogen et al., 2017, p. 13), 'culture' is '*the actual grounded terrain of practices, representations, languages and customs of any specific society*'. Disconnection also is influenced by and produced/reproduced through cultural factors, such as norms, values, beliefs and expressive symbols of culture, that influence the five domains within the mirrored Ives et al. (2018) table: material, experiential, cognitive, emotional and philosophical. The cognitive dimension of disconnection (in Table 1 described as disconnection due to ecological illiteracy and loss/lack of biocultural memory; and disconnection due to lack of knowledge of outdoor recreation behaviours and skills) is embedded in and influenced, for example conversations, stereotypes, typical practices, symbols about nature and shared knowledge. Following, for example Kitayama (2002), values are deeply embedded in our surroundings, including symbols and communication patterns, and accordingly, values influence how we relate to our natural environment. The philosophical disconnection (in Table 1 described as the disconnection due to a distanced or indifferent relationship to nature, disconnection due to changing lifestyles, and the disconnection due to human/nature decoupling) is also embedded in sociocultural factors. The 'distanced or indifferent relationship to nature' is found in the wildlife value orientation literature, in which humans with 'distanced' values toward wildlife are less interested in wildlife and wildlife-related issues (Gamborg & Jensen, 2016; Teel et al., 2010). However, Manfredo, Berl, et al. (2021) and Manfredo, Teel, et al. (2021) found an intergenerational shift in societal values toward wildlife and related this to trends in state-level socioeconomic factors over time. Increased urbanization, education, and overall economic well-being in post-industrial societies have resulted in unprecedented shifts in values on the individual level, influencing human relationships with wildlife. We therefore argue that similar trends must be addressed in the case of connectedness to nature.

2.3 | Disconnection produced and reproduced by institutions

Institutions are not limited to governments and corporations. Instead, institutions can also include the groups that form through a common identity (community of place), a shared set of interests (community of interest), or practice (community of practice) (Harrington et al., 2008). For example, the global political community is striving for actions to tackle climate change and biodiversity loss; and a specific example may be noted in the Paris Climate Agreement (IPCC) and biodiversity protection strategies (IPBES), where both governmental and nongovernmental institutions have been mobilized toward sustainability transformations to reach these shared goals. Therefore, it is crucial to consider the disconnection produced/reproduced by social and political institutions, including norms, laws, and management systems (Vatn, 2005). These institutions can establish or endorse norms, policies, and legal rules in order to invoke and influence the preferences, values and behaviour of people (Anderson et al., 2022; Vatn, 2005), as in the cases of advancing car-dependent urban development (Soininen et al., 2022) or by not prioritizing early childhood educational settings with adequate green elements (Chawla, 2021) or including young children in broader ecosystem services discourse (Beery & Lekies, 2021).

In addition, institutions and change agents can be open or closed to new ideas and practices. They can promote or resist change through public communication or closed lobbying channels or by enacting institutional reforms (e.g. policy and legal changes) with the support of elected officials (Patterson et al., 2021). These aspects of institutions, we argue, play a vital role in producing or countering disconnection from nature. For example, material and experiential disconnections from nature caused by routine degradation of the global environment by corporate actors such as oil companies can be challenged by civil society via judicial institutions, as in the case of *Milieudefensie* et al. *versus Royal Dutch Shell*, where the District Court in The Hague ordered Shell to cut its global carbon dioxide emissions by 44% by 2030, as compared with 2019 levels (Macchi & van Zeben, 2021). However, institutional adoption of new frameworks, such as the SMART city model, may foster material and cognitive disconnections. Here, the authors Colding and Barthel (2017) note a challenge to the SMART city model: Although SMART cities offer a promising paradigm for

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transitions toward urban resilience and urban sustainability, they can simultaneously hinder children's opportunities to connect to nature by limiting access to nature. Another example are the institutions of global environmental change science, which can obstruct the emotional and philosophical connection to nature through their interests, needs and norms (Lahsen & Turnhout, 2021), and which often lack attention to the cognitive, emotional, and relational capacities required for better environmental governance (Wamsler et al., 2020) and the philosophical underpinnings of current 'disconnected' approaches.

2.4 | Disconnection produced and reproduced by political expressions and power relations

Closely entangled with the ideas from the previous section, social and political organizations and governance structures are embedded within and structured by power asymmetries (Sandbrook, 2017; Tesfaw et al., 2018), and they have the power to mobilize agency, resources and discourses and can shape other institutions and policies to achieve a specific goal (Maas et al., 2021). Power can be exerted in multiple ways, including through Power can be exerted in multiple ways, including through (1) power of discourses, narratives, or knowledge production, (2) framing power--how issues are understood, communicated, and discussed, (3) structural power--which works through socio-cultural, political and economic systems, (4) rule making power—the power of actors to create rules and formal institutions and (5) operational power—the formal and informal rights to determine the use of assets such as monitoring responsibilities (Andersson et al., 2022). To return to the role of oil and gas companies, we can observe how the interests of these corporate bodies intersect with particular political structures to mobilize power and create disconnection, for example, when oil and gas companies provide financial rewards to legislators that vote against environmental legislation (Goldberg et al., 2020). These legislators can influence climate mitigation priorities under the auspices of the United Nations Framework Convention on Climate Change (UNFCCC) and use this platform to discredit climate science and connections to nature aligned with sustainability goals (Dunlap & McCright, 2011; Newell & Paterson, 1998). However, civil society organizations can work with governmental institutions to direct political power toward supporting human-nature connections. An example of political power that supports the potential for cognitive and experiential re-connection can be seen in the actions of the Welsh government, freezing new road building projects, and highlighting the need to transform the national walking and cycling infrastructure as part of its plans to tackle the climate emergency (Morris, 2021). This governmental action can provide greater public access to nature experience, that is, time in and proximity to nature, which have been noted as key factors in nurturing nature connection or key outcomes of increased connection to nature in the environmental educational and environmental psychology literature (Chawla, 2020; DeVille et al., 2021; Nisbet et al., 2020).

Many forms of disconnection from the material to the philosophical can be produced via knowledge co-production processes in environmental research, reinforcing unequal power relations and inhibiting societal transformation if dissensus is not openly discussed (Turnhout et al., 2020). For example, institutions, regulations, practices, partnerships and communication frames that support human-nature connection can be fostered or foreclosed in these processes (Chambers et al., 2021), which can, in turn, influence beliefs and normative values (Welden et al., 2021). Finally, many societies are riddled with long-standing systemic inequalities based on race, ethnicity, class and gender differences. These inequalities in representation, resources and power, in turn, support material and experiential disconnections in the form of reduced access to and engagement with nature (Avila, 2018; Heynen et al., 2006), as well as cognitive and emotional disconnections through generational trauma, negative experiences and desires for safety (Finney, 2014; Sonti et al., 2020).

2.5 | Broadening disconnection

In Section 2, disconnection was presented from the starting point of Ives et al. (2018) careful review of connection to nature. Considering the dimensions used in the review highlights factors of disconnection not fully captured in a mirroring of connectedness. For example, this section presents dimensions of social, institutional and political expressions/power relations as three examples of what it means to consider disconnection from nature beyond the individual. The results of this analysis support the concern that to fully understand disconnection: we must include social factors that may impact the human relationship with nature and contribute to disconnection (see Table 2). Examples of disconnection will be developed in three cases in Section 3, which illustrate specific and diverse examples of disconnection beyond the more common consideration of an individual's relationship with nature.

3 | UNDERSTANDING DISCONNECTION THROUGH THREE CASES

To highlight the dimensions of disconnection described in Section 2, we now illustrate the complexity and dynamics of disconnection through case studies. Case examples were selected as examples of different dimensions of disconnection from nature that play out in different parts of the world. We use case studies to define and illustrate key conceptual aspects in a vignette approach. As described by Knierim et al. (2021), a vignette 'is a social case story that serves as an example and provides illustrative data for conceptual argumentation and an ex-post analytical reflection' (p. 1062). Case examples were purposefully selected to illustrate rich, nuanced and geographically diverse examples of the different dimensions of disconnection to nature based on fieldwork from members of the research group. We use a case study on the experience of immigration to illustrate the importance and dynamics of the sociocultural dimension as outlined in Section 2.2. The institutional dimension is illustrated through exploration of the disconnection in relation to global meat production and consumption. Finally, the political expressions and reproduction of power relations inherent to disconnection are illustrated through a consideration of various interpretations of urban nature in Cape Town, South Africa.

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TABLE 2 Additional dimensions of disconnection which make meaning at societal levels of sociocultural, political, and institutional processes

Dimension	Type	Elaboration	Sample literature
Sociocultural	Disconnection due to diverging nature perceptions	Social groups having different ideas, approaches, or norms to 'nature' and to nature experience, such as, that is, scientific/conservation versus informal views, wilderness ideals and 'purity' vs. urban or hybrid/entangled natures, preferences for exotic environments and symbolic species versus endemic, narratives of invasive species as bad and indigenous as good	Aaron & Witt, 2011; Friedman et al., 2022; Lidström et al., 2016
	Disconnection due to cultural norm dominance	Cultural norms are internalized during the process of socialization, they become part of a person's identity and form what they, s/he thinks is right to do. Cultural norm dominance might contribute to disconnection when access or use of nature are hindered for individuals or groups of individuals that do not conform with the dominating norm that structure interaction with nature.	Berger & Luckmann, 1966; Hodgson, 1988; Gelfand et al., 2011
	Disconnection due to exclusion (outsideness)	Landscapes as arenas for promoting national identity—often defined through opposition to the 'other', Exclusion of some groups from landscapes	Cass et al., 2005; Askins, 2006, 2009
	Disconnection due to perceived lack of safety and danger associated with other groups of people	Green spaces as dangerous and unsafe due to perception of risks associated with crime, assaults and harassment	Sreetheran & Van Den Bosch 2014; Bogar & Beyer, 2016
Institutional, Political	Disconnection due to discrimination	Structures that create inequities and inhibit nature experience based on race, gender, religion, and other social groupings	Bortfeld, 2020; Kloek et al., 2017
	Disconnection due to displacement	Undesired movement by groups creating uncertain or unsafe place relations	Environmental Justice Foundation, 2022
	Disconnection due to recognized injustice	Institutional structures that reproduce inequities and inhibit safe, comfortable and chosen nature experience	Egoz & De Nardi, 2017; Jay et al., 2012
	Disconnection due to procedural injustice	Institutional processes, such as access to decision-making or policies that inhibit safe, comfortable and chosen nature experience	Suiseeya, 2021; Lawrence et al., 1997
	Disconnection due to distributional injustice	Structures and infrastructures that contribute to economic and opportunity disparities that inhibit safe, comfortable and chosen nature experience	Ferguson et al., 2018
	Disconnection due to lack of access	Barriers (physical, psychosocial, structural and/or legal) that inhibit safe, comfortable and chosen nature experience	Boone et al., 2009; Comber et al., 2008; Ravenscroft & Markwell, 2000; Corazon et al., 2019; Sandell & Fredman, 2010
	Disconnection due to grey transport infrastructure	Barriers that are unsafe or insurmountable that create an access barrier to safe, comfortable and chosen nature experience	Villanueva et al., 2016; van Eldijk et al., 2022

3.1 | Immigrant experience

Immigrant connections to nature in the places they migrated are firmly embedded in cultural understandings of the natural environment. Therefore, we argue that by understanding the different immigrant groups' recreation patterns through the lens of disconnectedness and also 're' connecting to nature, we may understand these patterns to a much deeper extent; immigration to new countries and new natures implies the need to disconnect and 're' connect to the new places, as shown by, for example Finney and Rishbeth (2006) and also Lovelock et al. (2011).

Research has shown that ethnic minorities (refugees, asylum seekers, 1st & 2nd generation immigrants) use natural areas differently or to a lesser degree than the majority population (Floyd

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et al., 2008; Gentin, 2011; Kloek et al., 2013). Explanations for these differences have been rooted in (1) marginality (social & economic), (2) discrimination, (3) different sociocultural values/practices and (4) the extent of acculturation (e.g. Kloek et al., 2017; Stodolska, 2015; Stodolska et al., 2017). Additionally, lower participation rates have been explained by the unequal distribution or low quality of green infrastructure in ethnic minorities' neighbourhoods (Boone et al., 2009; Comber et al., 2008; Ravenscroft & Markwell, 2000). These inequalities have been addressed from a socioenvironmental justice perspective (Jay et al., 2012; Morris et al., 2011; O'Brien et al., 2017). From Table 2, it becomes evident that ethnic minorities' underrepresentation, as well as the unequal distribution/low quality of green infrastructure, also can be understood in terms of disconnectedness produced/reproduced through sociocultural factors, addressed in disconnection due to exclusion as well as disconnection due to recognized injustice.

The sociocultural factors affecting the various types of disconnection (at both the individual and societal level) may be based upon diverging conceptualizations of nature (Buijs et al., 2009), as well as lack of knowledge about norms, the culturally rooted ways of behaviour in the outdoors, as well as lack of knowledge about where to go (Rishbeth & Finney, 2006). We claim that these factors are embedded in 'disconnection due to cultural norm dominance' and 'disconnection due to exclusion (outsideness)'. Furthermore, disconnectedness to nature within this example can be linked to institutional political factors, as there is little focus on underrepresented groups in outdoor recreation legislation. A notable exception may be the Swedish outdoor recreation goals established by the Swedish government in 2012, inclusive of consideration of how the goals may be able to serve the needs of specific groups (Svenska Riksdag, 2012). However, more common is legislation focused on providing access for all—and not on the need for knowledge about where to go, tapping into disconnection due to discrimination and recognized injustice (Jay et al., 2012; Morris et al., 2011).

Disconnection due to cultural norm dominance can be related to the research by Curry et al. (2001); the author presented the idea of national identity as constructed around the rural idyll produced by white men, contributing to a feeling of exclusion for ethnic minority groups. Recently, the focus has been on nature-based integration, emphasizing that natural areas should be seen as a resource for integration (Derrien & Stokowski, 2014; Gentin et al., 2019; Peters et al., 2016). By providing not only the opportunity for recreation but instead focusing on introducing proximate recreational areas and focusing on learning about outdoor recreation, for example on what to do (behaviour and cultural learning), how to behave (norms) and where to go (accessibility), underrepresented groups can be encouraged to participate in outdoor recreation activities (Gentin & Præstholm, 2021; Gentin et al., 2019; Morris et al., 2011). This increased participation will then form the basis for reconnecting to new natures and may also serve as a foundation for establishing C2N in new surroundings.

3.2 | Production and consumption of meat

Material, cognitive and emotional disconnections are visible in meat production and consumption, which are mutually intertwined and embedded in and sustained by cultural practices and paradigms far beyond the individual level (Barlösius, 2016). Due to widespread indifference, an orientation toward low prices as the primary criterion for food purchases is the key driver of current meat production modes (Carolan, 2018). This factor, along with an 'imperialist' worldview, is a dominant cultural paradigm that builds on the internalization of benefits while allowing one to externalize adverse effects (Brand & Wissen, 2017). A diet that regards meat as healthy and an indispensable element of a 'complete' meal is the third component of the cultural patterns that underpin this case (Font-i-Furnols & Guerrero, 2014).

As part of the reciprocal relationship between individual and societal disconnections from nature, material disconnections at individual levels can play an important role. While regional-level connections between livestock producers and meat consumers have been disrupted, globalized long-distance meat value chains have formed. For instance, livestock in hotspots of meat production in Europe (e.g. Denmark or Germany) is typically raised based on soy and other crops produced in distant places, typically in Latin America (Naylor et al., 2005). The number of animals that must be produced to satisfy consumer demand in Europe cannot be fed from agricultural land where these animals are kept alone, and the global land footprint of European meat production is increasing (O'Brien et al., 2017). This material disconnection within production contradicts the idea of closed loops or a circular economy and results in multiple and severe social-ecological sustainability challenges (Steinfeld et al., 2006).

The case of meat consumption also exhibits cognitive and emotional disconnection because consumers are easily confused about the adverse social and environmental effects of meat consumption. Due to the complexity of value chains, production conditions are not transparent and consumers can be considered ecologically illiterate as they have little or no knowledge and direct experiences with distal fodder and animal production (Kastner et al., 2011).

Long-distance meat production and consumption chains are made possible in institutional processes, most importantly global trade and agricultural support policies. Power imbalances, with little bargaining power from Latin American countries and even more local community actors to find the appropriate consideration and acknowledgment of environmental and social issues, are an inherent element of the political-economic structure of current food systems. Vested interests, often resulting in socially and environmentally harmful subsidies (Scown et al., 2020), and lacking the will of key political actors in Europe to address environmental problems and social injustices related to meat production are other important social aspects.

The meat case reveals that connections and disconnections must be considered not mutually exclusive but potentially dependent on each other. Disconnection of European meat consumers from the

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sites of fodder production as a constitutive element of their diets is only possible through a teleconnected global trade system (Garrett & Rueda, 2019).

3.3 | Access, safety and informal nature

Examining human-nature relations in a global South context shows how disconnection from nature needs to be further expanded to include historical dimensions that recognize how colonialism and exclusion have created certain kinds of nature to which people are considered more or less disconnected. In highly industrialized societies, it is often assumed that people have beneficial engagements and positive attitudes toward urban green areas (Elands et al., 2015). However, informal green spaces in low- and middle-income countries are often linked to problems associated with waste and sewage, adverse health impacts and crime (Adegun, 2017; Venter et al., 2022). Examining human-nature relations within the city of Cape Town in South Africa, with unique cultural and biological diversity and extreme developmental challenges, demonstrates the importance of considering historical, political, cultural, colonial and justice dimensions to understanding and defining disconnection from nature.

Although natural areas in Cape Town are associated with positive and negative well-being outcomes (Goodness & Anderson, 2013), city officials report that unmanaged natural and open spaces adjacent to low-income areas are often perceived as 'negative space'. The negative label is based on these places being associated with a lack of safety and high crime rates. At the same time, more highly managed parks in the city provide recreation for the more affluent areas of the city (Stålhammar, 2021). Negative aspects of green areas also include scavenging animals such as baboons and the threat of uncontrolled fires (Hoffman & O'Riain, 2012). Disconnection from formal and highly managed nature areas and parks is a question of unequal access, which must be understood concerning historical apartheid spatial planning, which has upheld segregation and prevented access to natural reserves by nonwhite communities.

In addition, the idea of nature as a safety hazard is complicated by narratives on how some vegetation types are considered more unsafe than others. Some groups have argued that thick and dense indigenous vegetation provides better hiding places for criminals and has been seen as a safety hazard in the city's most affluent areas, where community members prefer invasive pine forests for recreational uses and provide shade (Stålhammar, 2021). These narratives show the shortcomings of the idea of a scientifically 'correct' type of nature that one should be connected to, and the importance of taking informal ways of knowing and engaging with nature into account. From a biodiversity management perspective, a central challenge in considering citizens' preferences is that they do not know the difference between the 'right' types of nature, such as invasive versus indigenous (Stålhammar, 2021). The dominance of the traditional conservation perspective challenges approaching the idea of disconnection from nature in Cape Town, since conservation is associated with and influenced by its colonial past (Martin et al., 2016), including the scientific ideal of biodiversity and the 'purity of nature'. This clashes with other ideas about the social importance of urban nature, such as urban gardens within community projects, positive engagements with invasive species, indigenous practices, and the harvest of traditional plants (Ernstson, 2013; Lidström et al., 2016; Petersen et al., 2017). This case demonstrates the importance of disconnection concerning multiple understandings of *what nature is*, for whom, and due to historical and political reasons, and examining the justice implications of specific situations.

4 | DISCONNECTION SYNTHESIS

This perspective article has attempted to chart a course beyond a simple dichotomy of disconnection and connection; the concept of disconnection may help inform our understanding of connectedness. We have argued that we need a more nuanced understanding of C2N, which goes beyond a unidirectional understanding of positive connection to a more complex understanding that takes into account both connection and disconnection from nature. The cases revealed that the disconnection from nature becomes expressed in individual and societal meaning-making processes, summarized in the 'wheel of disconnection' (Figure 1). This wheel represents a critical point of departure from individualistic interpretations of C2N, which assumes that the level of connection is a byproduct of the type and extent of individual experience in nature (Rosa & Collado, 2019) or the level of inclusion of self-in nature (Schultz, 2001). The examples mainly relate to individual processes on the left side (as highlighted in Table 1). The right side of the wheel includes types of disconnections related to societal processes (as highlighted in Table 2). Building on Gould and Schultz (2021), the wheel suggests that people may not always have explicit beliefs about their relationship with nature; instead, they surface indirectly through individual and societal processes. In other words, disconnections may have different manifestations (Shackleton et al., 2016) and origins (Campagne et al., 2018).

Table 3 shows how the cases can fit into the wheel. The wheel allows us to consider specific situations or examples and consider disconnection from nature more comprehensively and provides the opportunity to see disconnection across a spectrum of human meaning-making. Furthermore, many of the terms used in the table are designed to include both forms and drivers of disconnection and their interaction.

5 | DISCONNECTION APPLICATION

Beyond the case studies, we find further support for a broad understanding of disconnection as a way to support practice. Examples of such support include the IPBES framework of Nature's Contribution to People (Brondizio, Settele, et al., 2019) and related literature on ecosystem disservices. Further, an evolving environmental education literature and practice are also supported by this broader and

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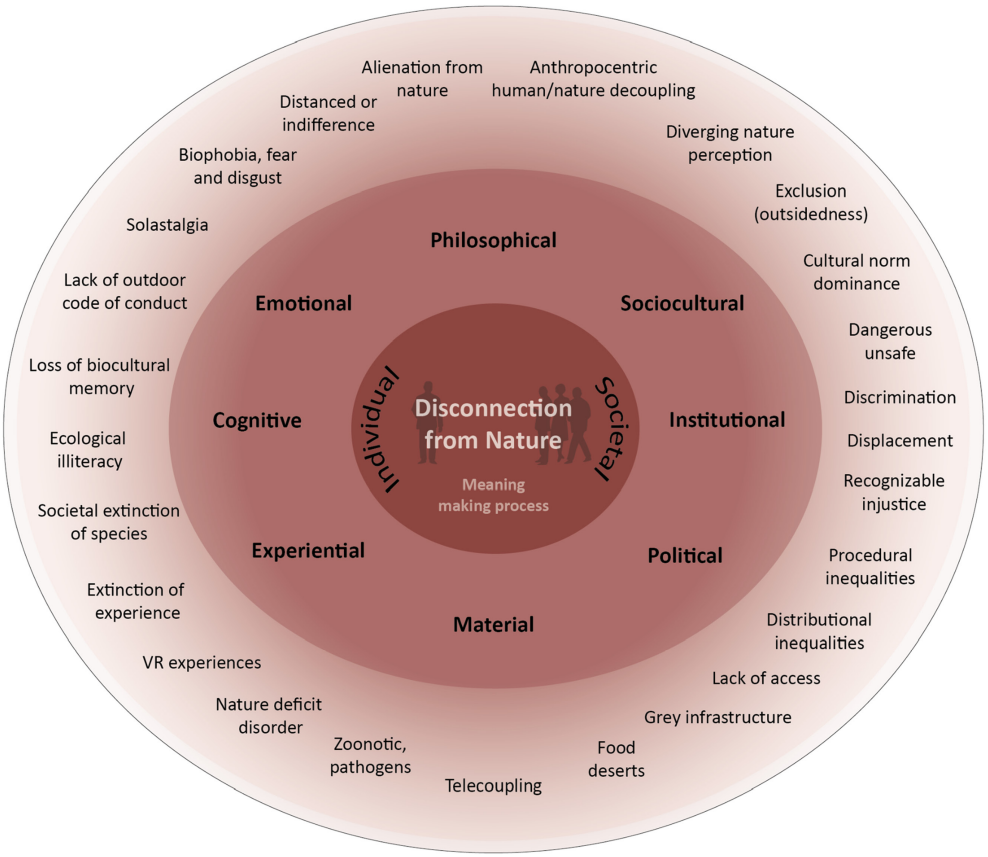

FIGURE 1 Wheel of disconnection. The figure illustrates how disconnection from nature takes place through interrelated processes of individual (Table 1) and societal (Table 2) drivers and dimensions of disconnect. These processes might result in different types of disconnection, as summarized by terms and concepts in the outer circle.

critical approach to disconnection. Both of these examples are presented in this section.

5.1 | Nature's contribution to people (NCP) and ecosystem disservices

Despite recognizing the central and pervasive role that culture plays in human-nature relationships, negative contributions are commonly presented concerning 'costs', benefits, or detriments to human well being (Escobedo et al., 2011; Von Döhren & Haase, 2015) in nature's contributions to people and ecosystem services scholarships. For example, disease transmission and predation that damage people or their assets (Díaz et al., 2018) or damages caused to human well-being by loss or degradation of cultural ecosystem services (Huynh et al., 2022). Recently, nature's disvalues have been suggested as a concept that needs attention, considering the full spectrum of disvalues necessary to better identify social-ecological tradeoffs, which is an important step for seeking solutions and finding common ground on sustainability and justice (Lliso et al., 2022).

Here, we move beyond the ecosystem potentials of disconnection from nature and show how disconnection emerges from the interlinkages between social, cultural, and political processes in specific decision contexts such as meat production. This finding aligns with a more contemporary discussion on ecosystem disservices highlighting that disservices are coproduced by humans and ecosystems. Thus, there is a need to include disservices in biophysical and sociocultural assessments (Blanco et al., 2019). Importantly, the disconnection wheel moves beyond these contributions by showing how disconnections linked to different aspects of individual or societal meaning-making processes manifest in specific contexts. Further, meaning-making processes linked to the political and institutional contexts of place can serve to 'filter' how individual or group expressions of disconnection are mainstreamed into daily life. For these reasons, cultural differences must be seriously considered when assessing human-nature relationships (Hill et al., 2021).

5.2 | Research and practice evolving environmental education

Environmental education research and practice (EE) is highly associated with the C2N study (Krasny, 2020; Lengieza & Swim, 2021) and provides a valuable context to consider a broader understanding of disconnection that may be able to guide C2N effort. C2N study should be careful not to emphasize dualistic thinking and rely on simple causality. The complexity in understanding connectedness goes beyond progression models and their inherent pursuit of universality

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TABLE 3 Applying the wheel of disconnection as a tool to better understand complexity in cases of disconnection from a social meaning-making perspective.

Case	Meaning-making	Dimensions	Example of disconnection
Immigrant experience in Western Europe	Societal	Sociocultural, institutional, political, material	Exclusion, cultural norm difference, dangerous, discrimination, recognizable, procedural and distributional inequalities
Global beef market	Societal	Institutional, political, material	Distributional and procedural inequalities, ecological/food illiteracy, extinction of experience, telecoupling, cultural norm dominance
Urban nature in Cape Town, South Africa	Societal	Sociocultural, institutional, political, material	Exclusion, lack of access, dangerous, displacement, discrimination, recognizable, procedural and distributional inequalities, diverging nature perception, cultural norm difference

Even without the Wheel of Disconnection as reference, Table 3 highlights examples of moving beyond individual perspectives of disconnection to the societal, inclusive of a variety of disconnection examples.

and necessity and must emphasize relations between individuals and their various interacting contexts (Beery & Wolf-Watz, 2014). A better understanding of disconnection can help ensure that our efforts toward C2N recognize this complexity. Scholars in environmental education have presented the work of 20th century American conservationist Aldo Leopold as a practical philosophical basis for C2N (Beery, 2013; Goralnik & Nelson, 2011). Leopold used the term 'land ethic' in his work exploring the human relationship with nature. He argued that this idea 'enlarges the boundaries of the community to include soils, waters, plants and animals, or collectively, the land' (Leopold, 1949, 204). he also encouraged people to see themselves as belonging to a broader community, social and ecological, that is, 'the land'. The term community is critical here as it remind us that C2N is not simply a measure of individual relationships, but is also a product of the social world of people, one that comes with social and cultural organization, power structures, and collective infrastructure.

We must guide educational efforts to empower individual relationships between people and nature without losing sight of education's role in illuminating social and cultural ways to collectively support the idea of people as a part of nature. A good example of this in recent C2N literature highlights participatory collective farming as a leverage point to foster C2N (Pérez-Ramírez et al., 2021). The study considered how participatory collective farming activities might be able to identify pathways to a stronger C2N. Individual participation in farming may provide a level of nature experience to support greater connection while also recognizing the role of social elements beyond the individual.

5.3 | Future directions

This paper did not seek to operationalize the various dimensions of disconnection. Future research is needed to develop mixed or multimethod approaches for assessing disconnection from individual and societal perspectives and the direct and indirect drivers of disconnection within specific contexts. One promising research direction is considering that connections to nature in one context can be disconnections in another context. This parallels Rasmussen et al. (2017) observation that some functions or characteristics could switch between services and disservices.

6 | CONCLUSIONS

The results of this perspective have been to broaden awareness of disconnection and how it manifests in different areas of individual and societal meaning-making. Connection to nature is not only salient to individuals but is equally applicable to societal meaning-making processes. The disconnection from nature wheel presented in this article provides a way of showing how disconnections to nature manifest themselves with respect to different types of individual or societal meaning making processes, thus problematizing existing research that seeks to create dualisms between the positive and negative impacts of humans on the environment in isolation of cultural or political contexts. We do not seek to discount research or significant practical efforts to foster an individual connection to nature by calling on the reader to consider the social or collective elements of disconnection. Instead, we hope that creating greater awareness and understanding of disconnection will be able to guide opportunities going forward to strengthen C2N along a continuum from the individual to the collective.

AUTHOR CONTRIBUTIONS

All authors participated in the conception of the idea, the organization and development of the paper and the writing of the paper.

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