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ORIGINAL ARTICLE

"My place in the grand scheme of things": perspective from nature and sustainability science

Rachelle K. Gould[1,2,3] · Eliza Merrylees[2] · Diana Hackenburg[1,3] · Tatiana Marquina[1,3]

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Abstract

A burgeoning and diverse field of study investigates the many aspects of human–nature relationships—what they mean for ecosystems, for human well-being, and for transformations toward sustainability. We explore an emerging concept in human–nature relationship research: perspective from nature, defined as the idea that nature helps people gain perspective on where they fit in the world and what is important (what some people call a "reality check"); in most cases, this involves a shift of attention beyond themselves and their particulars. We analyze responses to open-ended questions in a survey ($n = 3204$) focused on how residents of Vermont, USA, experienced nature during the early months of the COVID-19 pandemic. We identify 481 instances and six aspects of perspective from nature; our analysis deepens existing understandings of the concept. We connect perspective from nature to five emerging areas of study in global change research: the multiple values of nature, nature's mental health benefits, mindfulness, humility, and empathy. Perspective, this work suggests, is a construct that crosses multiple fields of study within human–nature relationships and offers potentially important insight into the role experience with nature may play in transitions toward sustainability.

Keywords Cultural ecosystem services · Empathy · Human–nature relationships · Humility · Mindfulness · Relational values

Introduction

Human values, worldviews, and behaviors in relation to nature are central to the unfolding climate and ecological crises and core to working toward a sustainable future. In recent years, consequently, the study of human–nature relationships has exploded (Ives et al. 2017; Muhar et al. 2018; Buijs et al. 2018). This work has recently built on empirical research to suggest multiple conceptual advances—i.e., concepts that identify and describe existing phenomena relevant to the larger goal of better understanding human–nature relationships in a time of rapid global change. Research on ecological grief (Cunsolo and Ellis 2018) provides an excellent example: the concept developed from empirical research in a few contexts that demonstrated the mental health impacts of climate change (Cunsolo Willox et al. 2013; Ellis and Albrecht 2017), and has since been found to be relevant in a wide variety of other contexts (Conroy 2019; Crossley 2020).

Here, we suggest that *perspective from nature* be added to the growing suite of concepts that help to understand multifaceted human–nature relationships and, crucially, how those relationships may relate to transitions toward sustainability (Chan et al. 2020). We first describe previous research on perspective from nature and define the concept. We then describe our study and findings related to perspective from nature. To conclude, we explore how the concept relates to multiple other topics, including mindfulness, humility, and empathy. Our results suggest that perspective from nature may help to counter the human hubris that arguably lies at the heart of many sustainability problems, and that it can, relatedly, influence both individual human well-being and collective transformations toward sustainability.

Handled by Maike Hamann, Stellenbosch University, South Africa.

✉ Rachelle K. Gould
rgould@uvm.edu

[1] Rubenstein School of Environment and Natural Resources, University of Vermont, 81 Carrigan Drive, Burlington, VT 05405, USA

[2] Environmental Program, University of Vermont, Burlington, VT, USA

[3] University of Vermont Gund Institute of the Environment, Burlington, VT, USA

Background

The concept of perspective from nature

A previous study on human–nature relationships (Gould and Lincoln 2017) analyzed qualitative data from interviews about cultural ecosystem services in both agricultural and forest ecosystems in Hawai'i. It found many examples of the idea of perspective from nature in these two different ecosystems, and introduced the concept of perspective from nature as one possible aspect of cultural ecosystem services. In this study, we describe how the same concept appeared, unprompted, in data collected in a very different context (see "Methods"). We build on the definition in that previous study (Gould and Lincoln 2017) and define perspective from nature as: *The idea that nature helps people gain perspective on where they fit in the world and what is important (what some people call a "reality check"); in most cases, this involves a shift of attention beyond themselves and their particulars.*

Multiple values of nature

The concept of perspective from nature arose initially from work on the multiple values of nature, specifically, as noted above, research on cultural ecosystem services. Here we summarize the multiple-values-of-nature field, as the intellectual home of the concept.

The study of the nonmaterial benefits and values of nature is associated with efforts toward pluralistic valuation of ecosystems (Jacobs et al. 2016), an interdisciplinary area of study that is diverse, fuzzy edged, and continuously in development (Ahtiainen et al. 2019; Gould et al. 2020). The recently published IPBES Values Assessment (IPBES 2022) is an indication of the global importance of this topic in both research and practice; it focuses on the theory, methods, and practice of the multiple ways nature can be valued and extensively discusses plural valuation.

The nonmaterial benefits and values of nature can be loosely defined as the nonmaterial aspects of ecosystems' contributions to human well-being (Chan et al. 2012) and the values that people associate with nature (Dietz et al. 2005; Kalof and Satterfield 2005). Though the boundaries of "multiple values of nature" research are inexact, the field generally includes the study of cultural ecosystem services, nature's nonmaterial contributions to people, social values, relational values, and the multiple values of nature (Millennium Ecosystem Assessment 2005; Kenter et al. 2015; Muraca 2016; Chan et al. 2016; Díaz et al. 2018). This field addresses diverse phenomena such as recreation, spiritual fulfillment, cultural heritage, and identity as connected to ecosystems (Milcu et al. 2013).

This study

The COVID-19 pandemic provides an acute and all-encompassing instance of global change—the most substantial change that many people alive have ever experienced, and the obvious result of complex social–ecological interactions (Kadykalo et al. 2022). We see this as an opportune time to explore phenomena related to human–nature relationships for multiple reasons. First, the pandemic provided a unique view into the mechanisms behind nature's benefits because it stripped away some of the "noise" that often fills our lives to reveal more basic structural characteristics of society (Matthewman and Huppatz 2020). Second, many people around the world increased their time spent outside during the pandemic (Venter et al. 2020; Morse et al. 2020; Grima et al. 2020; Geng et al. 2021)—though these increases varied, in some cases, based on race, ethnicity, gender, or other sociodemographic factors (Lopez et al. 2021). We suggest that the clarity inspired by the pandemic, coupled with the documented increase in nature experience, may facilitate a conceptual advance in our understanding of a potentially powerful, if subtle and difficult-to-describe aspect of human–nature relationships: that experiences in non-human nature can provide "perspective."

We conducted a large-scale survey focused on peoples' experiences of nature during the first few months of the COVID-19 pandemic in Vermont, USA. Responses to multiple open-ended questions strikingly reflect findings from previous research conducted well before the pandemic that identified the concept of perspective from nature (Gould and Lincoln 2017). In the free responses of our survey, people not only frequently mentioned perspective from nature; many also reflected on how that sense influenced their well-being. In this study, we analyze those free responses with two aims:

1. To better understand the concept of perspective—its meanings, nuances, and empirical manifestations—via data addressing human–nature relationships during the early months of the COVID-19 pandemic.
2. To connect the perspective to multiple topics currently being discussed in sustainability science and thus reflect on the concept's possible importance and relevance.

Because we first identified the concept of perspective in our data, and then noticed connections between it and other topics, we follow that order here. That is, we present our data, then discuss how our results relate to multiple-values-of-nature research, nature–mental health links, mindfulness, humility, and empathy. We also consider how all of this literature, in combination with the concept of perspective from nature, relates to transformations toward sustainability.

Methods

We conducted a survey to explore whether and why nature mattered to people near the beginning of the COVID-19 pandemic (May 2020). We surveyed residents of the state of Vermont, USA. People learned about the survey through multiple channels. The most common was via paid advertisements on a state-wide email listserv that reaches over 190,000 users and has a diverse readership (54% of respondents). The second most common was via social media and email networks of partner organizations (environmental NGOs and government agencies) (41% of respondents). A few respondents heard about the survey through friends and family (5%). We incentivized participation by entering respondents (of the survey analyzed here and a follow-up in October 2020) into a raffle for one of 20 $50 gift cards. The survey ran from May 3–19, 2020, through the last 2 weeks of Vermont's "Stay Home, Stay Safe" executive order. It was approved as exempt by the University of Vermont Institutional Review Board. The survey began with an information sheet that described the study, and participants agreed to the terms described therein before proceeding.

Convenience samples have important shortcomings—most notably, selection bias (in this case, people more interested in nature may have been more likely to respond). We addressed the method's shortcomings in two ways. First, we offered a lottery for a substantial reward ($50), which incentivized many people without particular interest in the topic to participate in a short survey. Our sample's demographics suggest that a wide range of residents took the survey; they were very similar to those of the Vermont population in most ways (through female and urban respondents are slightly over-represented and low-income and non-White respondents are slightly under-represented; see Table 1). Second, our conclusions are not contingent upon prevalence of responses (and therefore not contingent upon a random, fully representative sample); we do not make claims about the overall levels of the studied phenomena in the population. In our analysis, we focus on the phenomenon at hand (i.e., participants' reporting of perspective from nature); the representativeness of our sample does not impact the presence or description of this phenomenon.

The survey took on average 16.5 min to complete (median time was 12 min). Items inquired after multiple types of pandemic-related changes in nature interaction; these included changes in nature-related activities or distance traveled to partake in them, reactions to restrictions on nature access, and changes in 13 nature-related values or ways that nature benefits people (e.g., recreation, social interaction, mental health). We also asked people to complete the one-item Inclusion-of-Nature-in-Self scale (Schultz 2002) and collected basic demographic information. At the bottom of each survey page, we asked an open-ended question and allowed respondents to enter written responses. Table 2 presents the open-ended questions and the survey sections they followed.

Table 1 Demographics of our sample and of the study area (the state of Vermont, USA), the latter according to the US census (U.S. Census Bureau 2018a, b, c)

	Study sample *n* (%)	State of Vermont %
Mean age (years)	54.7 years	50.5 years
Gender		
Woman	2,013 (63.2%)	50.7%
Man	1,139 (35.8%)	49.3%
Non-binary	32 (1.0%)	
2019 household income		
Less than $10,000	35 (1.2%)	4.9%
$10,000–$24,999	217 (7.2%)	14.7%
$25,000–$49,000	556 (18.4%)	22.1%
$50,000–$74,999	673 (22.3%)	18.8%
$75,000–$99,999	572 (18.9%)	14.0%
$100,000–$149,999	613 (20.3%)	15.3%
$150,000–$199,999	203 (6.7%)	5.1%
Greater than $200,000	154 (5.1%)	5.0%
Race		
Am. Indian or AK Native	13 (0.4%)	0.3%
Asian	15 (0.5%)	1.7%
Black or African American	2 (0.1%)	1.3%
Middle Eastern or North African	3 (0.1%)	
Two or more races	105 (3.3%)	1.9%
White	2,936 (91.6%)	94.3%
Other	130 (4.1%)	
Ethnicity		
Hispanic or Latino	13 (0.4%)	1.9%
Not Hispanic or Latino	3,191 (99.6%)	98.1%
Urban–rural classification		
Urbanized area	26.0%	17.38%
Urban cluster	25.9%	28.19%
Rural	48.2%	54.43%

Urban/rural classifications were based on respondent zip codes and US census designations

Analyses for this paper focus on responses to the survey's open-ended questions (Table 2). We analyzed all open-ended responses together (i.e., did not distinguish between responses to the different questions). We did this because we are investigating phenomena not specific to particular questions or survey sections, so distinguishing the specific prompts to which comments were made is not helpful and would add unnecessary confusion. We used NVivo qualitative analysis software (Version 12, QSR International) to facilitate coding. To code, we used a hybrid form of thematic coding and content analysis (Braun and Clarke 2006;

Table 2 List of open-ended questions used in the survey and a brief description of survey sections they followed

Survey section	Description of section	Open-ended question(s)
Nature use	Participants selected their frequency of participation in 15 outdoor activities in a typical month, compared to the same time last year	Are there any other ways that the COVID-19 restrictions have altered your participation in these activities? If so, tell us how
Nature values	Participants rated their level of agreement with 13 value statements about how they related to nature during COVID-19 restrictions. Then, they could rank up to three value statements that were most true for them during COVID-19 restrictions	Feel free to explain your selections if you like. Why did you choose the one(s) you chose as more important to you now, during COVID-19 restrictions?
COVID-19 restrictions	Respondents answered 4 questions about their experience of nature given the current COVID-19 restrictions	Is there anything else you would like to tell us about how the COVID-19 restrictions relate to your experience of nature?
Inclusion-of-Nature-in-Self Scale	Respondents selected the set of two circles that they feel best describes their relationship with the natural environment (Schultz 2002)	We have one final question about nature and COVID-19. Is your experience of nature more or less meaningful to you right now, during the COVID-19 restrictions? If so, can you tell us why or why not?

The full survey content is included in Appendix 1

Vaismoradi et al. 2013), informed both by the data and by prior research. Our coding process was as follows.

In a first step, we read through all data to code for themes selected a priori. These pre-identified themes were: (1) identification with urban/rural landscapes; (2) feelings of loss, enrichment, fear, change, and gratitude; (3) discussion of how interaction with nature during the pandemic impacted, or did not impact, mental health, physical well-being, spirituality, and esthetics; (4) work status of respondent (e.g., furloughed, remote, essential); (5) responses to social distance restrictions; and (6) change in meaningfulness of nature relationships. Coding for these themes required us to deeply engage with the nuance and details of participant responses.

After this first general exercise with the data, we used a modified grounded theory approach for the remainder of the study (Charmaz 2014). That is, the idea for this paper emerged from our engagement with the data in the first analysis step, though unavoidably our engagement with the data was influenced by our knowledge of the literature on human–nature relationships (Charmaz 2014; Dunne and Ustundag 2020). In the next step of analysis, we reflected on the results from this first round of reading and coding the data. We noticed a distinct pattern: hundreds of people discussed aspects of the construct of perspective from nature, as defined above. We determined this emergent theme partly inductively (we noticed it after spending extensive time with the data) and partly deductively (based on the work on perspective from nature in a different context (Gould and Lincoln 2017)).

Based on this realization of the prevalence of comments about perspective from nature, we engaged in a penultimate step of analysis: we re-read and re-analyzed one-third of the qualitative data to code for comments related to perspective from nature. After coding this third of the data, we examined the coded comments and created a codebook comprising six aspects of perspective from nature found in the data. Using this codebook, we completed the final stage of coding, in which we re-analyzed all qualitative data for the six emergent aspects of perspective from nature. We coded comments to multiple aspects when appropriate.

Results

The survey yielded a convenience sample of 4,826 responses; we excluded incomplete responses and respondents who were not Vermont residents over 18 years old for a final sample of 3,204 complete, valid responses. The survey focused on "nature," undefined; we allowed participants to interpret "nature" themselves. In a follow-up survey we asked a subset of respondents to the present survey what they meant by "nature;" responses all addressed the more-than-human world, in many contexts and permutations.

The three top-mentioned, non-exclusive categories were private land (including small backyards and larger properties) (40%), bodies of water (35%), and forests (35%) (Dolen 2022). The next most frequently mentioned categories were trails or paths (32%), parks (22%), country (mostly dirt) roads (19%), and mountains (16%).

Participants rated and ranked 13 benefits from nature during the pandemic. Participants rated mental health highest (6.63 of 7) and ranked it most often within the top three benefits changed by the pandemic (72%). The next highest-ranking values (i.e., those ranked in the top three most important during the pandemic) were beauty and exercise, tied at 36%.

Analysis of responses to open-ended questions provides much deeper understanding of how nature benefited people during the first few pandemic months. In over 5,980 free-response comments, perspective from nature was a recurring theme. Our detailed analysis of these mentions of perspective from nature suggests that the concept has multiple facets. The concepts listed below, taken together, provide a rich and enlarged understanding of the idea of perspective from nature and how it may relate to well-being.

We coded participant comments to one of the six aspects of perspective from nature 481 times. These instances came from 359 different people (because we sometimes coded multiple comments from the same person) and comprised 386 different blocks of text (because we coded some comments to multiple aspects of perspective from nature). This means that about 11% of participants in our sample mentioned perspective from nature, unprompted—i.e., even though none of our questions (or prompts) mentioned anything approaching the idea of perspective from nature (see Table 2).

Below, we describe each category of perspective from nature we identified and provide examples of how each was evident in people's reflections. Table 3 provides additional examples of each aspect. Figure 1 demonstrates the prevalence of each aspect.

Explicit mentions of perspective (29 mentions, 29 respondents)

Some respondents used the *word* perspective in describing why nature mattered to them during the pandemic. Respondents' comments often encapsulated our definition of perspective from nature (i.e., that nature helps people transcend their personal problems and situations and gain perspective on the world). Two respondents wrote, for instance, that time in nature "is paramount to keeping the larger picture in perspective" and "provides me with a sense of perspective regarding my place in the grand scheme of things, which I find very important." One respondent noted that nature experience "helps remind me … that there is a bigger picture, a bigger world beyond my limited perspective." Another commented, through "walks in a more wild area (along a river) … I get a bigger and better perspective on my life, and feel connected to something bigger than me."

Humility: reducing egoism (52 mentions, 48 respondents)

The core definition of humility is a reduced focus on the self and a reduced sense of self-importance (Kruse et al. 2014). Our data contained two concepts that are conceptually nested within humility: reductions in egoism (or "drawing out of the self"), and reminders of the world's grand scale. We treat each as a separate category and elaborate below.

Dozens of respondents expressed that nature helped them move away from a more self-focused state. Many described that nature inspires in them a sense of insignificance—a recognition that the world and the Earth's systems do not revolve around them as an individual. One respondent noted that "being out in nature gives a sense of a larger world that absorbs your life and goes on without you. Personal issues are of no consequence. Being a responsible, caring, and respectful member of [a] community is what matters." Another reported being "humbled by how life is so much bigger than human experience," and another that "being in nature reminds me that I am only a small part of the world." Some participants took this reduction of egoism even further. They moved beyond reduction in self-focus to a reduction in species focus: numerous respondents noted that nature encourages them to draw not only out of their individual self, but out of a more shared human sense of importance and dominance. One person noted that nature is an "eye-opener" in regard to "human hubris;" another noted how nature encouraged reflection "beyond the homo sapien [*sic*] view we usually focus on."

Humility: scale (91 mentions, 86 respondents)

Another aspect of humility-related perspective from nature stems from nature's tendency to make people more aware of scale, both spatial and temporal. Many respondents stated that nature reminds them of their small size relative to the immense world. One respondent wrote that "during a time of such intense stress," nature serves as a reminder of "how immense my world is and how small a presence in it I am." Another made the point metaphorically: "Nature helps me see that I am a leaf or a grain of sand, and society is a tree or the entire beach." Other respondents noted how nature reminds them of temporal scale—specifically, the short span of human life. Two respondents succinctly captured the essence of how temporal scale provides perspective in the comments "that the natural world has been around before me and will go on when I'm gone" and that experiencing

Table 3 Aspects of perspectives and examples (the text includes additional examples)

Aspect of perspective	Examples
Explicit perspective	"Being in nature helps me to understand my place in the overall universe, and with this epidemic it helps me maintain perspective" "Being in nature gives me perspective, is calming, and grounds me in what really matters in life" "What being out in the woods, and looking at the sky at night, does is give perspective on the views presented on the news"
Humility: reducing egoism	"Being able to still access nature—the same hiking/running trails and road bike rides I was able to pre-COVID helps remind me that some things are the same, and that there is a bigger picture, a bigger world beyond my limited perspective" "With the isolation, nature helps me feel connected to the world outside my home, and feel a part of something big. I also tend to think of the virus as a part of the world in which we live, and the way it impacts the eco system of which we are a part, not totally in a negative way. Though we humans tend to see it that way since it is attacking us. But there are too many of us on this earth and we humans are having a negative impact on the earth. Being [in nature] helps me see this bigger picture beyond the Homo sapiens view we usually focus on" [Nature] "reminds me that people are only a small part of the system on Earth and that nature will carry on with or without humans"
Humility: scale	"The bigger picture of creation is before us in nature—humanity is but a small part of the whole" "Interacting with the natural world helps me remember how ancient the world is and that the current circumstance will pass. I feel very fortunate to have access to the natural world right out my door" "[Nature] reminds me that we are a part of something much larger than ourselves, …."
Importance and priorities	"The COVID plague is putting us in a position of consciously prioritizing what is meaningful in our lives" "As the whole country has been forced to slow down, I think we all are learning or RE-learning to weigh our priorities, and maybe stop and smell those proverbial roses. Personally, I've added bird houses to my yard, and am reexperiencing the joy of watching nesting pairs use them, which I did as a young girl with my parents" "My experiences in nature help me remember what's important and what's lasting"
Cycles and continuity	"The ability to go outside and commune with the forest, mountains, or a stream bring solace and peace to my life during an uncertain time. If we don't take care of our natural environment and the species that depend on it, we will continually find ourselves in these pandemic and crisis cycles. Retreating to nature and experiencing nature's cycles reminds me that there is a rhythm and purpose to life outside my own needs" "I like knowing that these natural processes continue, in the midst of human turmoil. It puts humanity into perspective and calms me"
Grounding	"[Nature]…gives me a sense of being grounded in a larger context despite the uncertainty and stress inherent in living during a pandemic" "The vulnerability that is palpable has made me appreciate this jewel we have in the natural world. While humans suffer and experience stress, the frogs are still croaking, the turtles are sunning, the geese are laying eggs, the beavers are building dams, and the plants are rising up out of the snow. It is so grounding to know that we can be resilient like nature and rise up out of the snow ourselves"

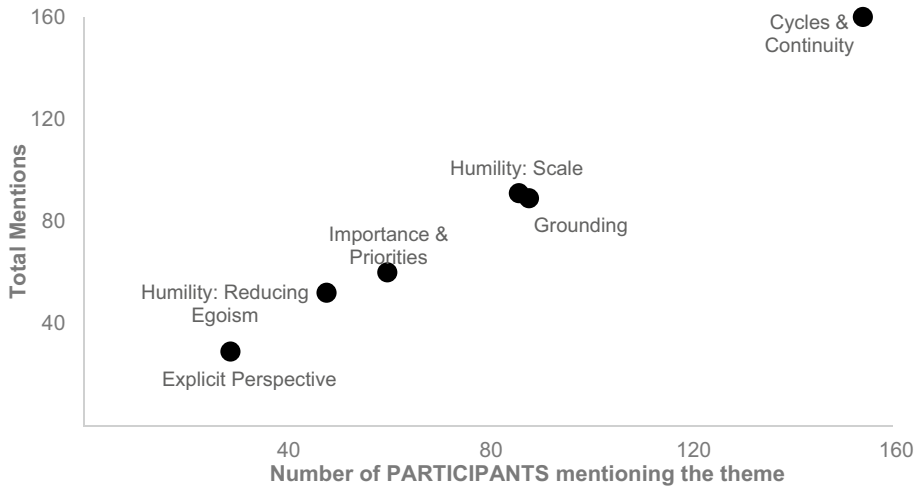

Fig. 1 Number of total mentions and number of participants who mentioned each theme. The apparent linear correlation, though not the figure's primary message, indicates that comments were distributed across participants; our findings do not result from a small number of respondents mentioning a theme many times. Instead, aspects that were addressed more often were mentioned by more people

nature "put[s] current day issues into a millions-of-years perspective."

Importance and priorities (60 mentions, 60 respondents)

Respondents also mentioned that nature helped them to remember what really matters. In a time of turmoil and confusion, many people noted that nature helped them avoid being consumed by more petty concerns. One respondent wrote that being in nature "soothes anxiety and reminds me of what matters." Another shared that "the reflection I have had in nature is reminding me of many important things in my life." Many respondents clearly and succinctly identified the big-picture aspect of perspective and connected it to what is important: one person wrote that nature "maintain[s] my perspective of what is truly important;" another wrote that nature "helps me remember the big picture and what's important in my life." One person expanded on this pairing of perspective of a "larger world" and the idea of what is important (i.e., "what matters"): "Being out in nature gives a sense of a larger world that absorbs your life and goes on without you. Personal issues are of no consequence. Being a responsible, caring, and respectful member of either community ["nature" and "the human world" in this respondent's prior words] is what matters."

Cycles and continuity (160 mentions, 154 respondents)

Many respondents noted that the cycles and continuity inherent in nature reminded them of the bigger picture and brought perspective. One respondent offered a poetic description of this concept of cycles and continuity and noted how attention to these cycles brought them a perspective "larger than [their] individual thoughts":

> Nature is porous. Whatever thoughts and moods I have it will absorb and reflect back to me. And then I become free to let go of worries and preoccupations and simply see what is larger than my individual thoughts. And I see a longer arc of time, the permanence of nature and the impermanence of its constituent parts--the downed tree, the feathers from dead turkey, the boggy spot where plants don't grow. Death and rebirth. Something will persist.

The seasonal timing of the pandemic's emergence in the USA played prominently in this category; the height of COVID-19 restrictions, and therefore implementation of this survey, coincided with the height of spring. Given Vermont's strong seasonality, spring is a time of dramatic change, when rebirth and regrowth are powerfully evident in many ways. One respondent encapsulated this theme in a comment about how observing seasonal rhythms reduced both ruminative single-track thinking and anxiety: "Noting the incremental seasonal changes is soothing, it reminds me that the nonhuman world has its rhythms and dynamics, which helps me shift my focus. All of this has become crucial to managing the anxiety that comes up around the pandemic." Another expressed a similar sentiment with more attention to specific details: nature is "reassuring [me] that the rhythm of life is continuing. Spring is coming, the trillium and hepatica are blooming in the woods, the birds are back, and the mosquitos are here. Although the patterns of our lives may feel totally distorted and the rhythms of each day seem to be obliterated, the sun still rises and sets, so we can be assured that on a very existential level, normalcy prevails."

This theme exhibited the most obvious and frequent references to the pandemic and its upheaval (the quotes above provide two examples of this). Many respondents expressed similar sentiments without mentioning springtime explicitly: they noted that nature helped them understand that while the pandemic's upheaval may seem overwhelming and all-consuming, it would eventually pass. One respondent wrote simply that "nature is a reminder that life goes on in spite of setbacks." Another touched on many of our sub-categories of perspective from nature, including cycles and continuity, with the reflection that "nature brings a steady normalcy… reminder than the world is persevering… brings perspective of what matters most in life [all ellipses in original quote]. Offers calm, hope and confidence that this period will pass in time."

Grounding (89 mentions, 88 respondents)

Many respondents noted that spending time in nature engendered a sensation of groundedness "amidst the 'noise' of the pandemic." Respondents used the exact words "grounded" or "grounding" often (78 times in total). Their comments conveyed that nature helped them to get a more solid, situated perspective of reality. One respondent stated: "My relationship with nature has kept me grounded, helped me to understand and be comfortable with the lack of control I feel right now." Another wrote: nature "brings me into the present, reconnects me with my senses and the world around me," which "is very grounding." In many cases, examples of "centering and grounding" overlap with discussions of "cycles and continuity." One respondent wrote that they "felt out of control during COVID-19 and confused/fearful" but that "it is grounding to be outside and witness things that are happening in spite of the world feeling like it has come to a screeching halt." Another put it simply: "There is something grounding … and reassuring about the constancy of the ever repeating cycles of life."

Discussion

Our results suggest, via nearly 500 coding instances of open-ended responses on a statewide survey, that perspective from nature is an important aspect of human–nature relationships. During the height of the COVID-19 pandemic in the USA, hundreds of people, in describing their interactions with nature, described perspective from nature, and how it impacted them, in diverse ways. The categories we identified in the data reveal nuances of the perspective concept, and thus help to understand what perspective from nature is, how it might function, and what it might mean for human action to move toward sustainability.

Below, we reflect on these results. First, we justify our claim that perspective is a unique concept worthy of study. Second, we elaborate on the importance of perspective from nature by comparing it to a diverse set of fields. Third, we identify limitations of this work and directions for future research, including research that interacts with the fields described below.

Perspective as a unique concept

In offering a new concept to the literature, it is important to justify why the concept is coherent and offers new understanding or explanatory power. Here, we consider two potential critiques of the idea of perspective from nature as a logical and useful concept. We respond to each with a justification of why perspective from nature is a coherent phenomenon that warrants attention in sustainability science.

One potential critique is that there is only superficial similarity in the comments above: people are discussing different phenomena in ways that are similar only in cursory ways and there is no underlying coherent phenomenon. The lack of underlying similarity, according to this critique, could also account for the many connections between perspective from nature and the wider literature. We think this critique misses the fundamental essence that undergirds the comments we coded as perspective from nature. Comments in all of the sub-categories align with our core definition; they all connect to an expanded sense of perspective and what is important. This is, we argue, a core phenomenon worthy of description. The worthiness, we argue, stems from the fact that a re-assessment of priorities and an ability to see the larger social–ecological picture (including where humans fit in it), and then build on that understanding to re-assess priorities is strongly aligned with the sort of transformative change that is at the heart of sustainability science.

A second possible critique is that our method does not test causality, so we cannot know whether the perspective people report is from nature, stems from some other source (e.g., a change of surroundings or context), or is simply a realization that has no cause. To this critique, we offer two related responses. First is that many comments in our data explicitly describe nature (or aspects of it) leading to changes in perspective. That is, comments use causal language in connecting nature to gains in perspective. Examples include (italics added to emphasize causal language): "retreating to nature and experiencing nature's cycles *reminds me* that there is a rhythm and purpose to life outside my own needs;" "being in nature *helps me* to understand my place in the overall universe;" "my experiences in nature *help me remember* what's important and what's lasting;" and the very explicit "being in nature *gives me* perspective, is calming, and *grounds me* in what really matters in life." Our second response is that the critique does not acknowledge the ethos and value of qualitative data, and is largely beholden to one type of epistemology. Extended to its logical wider application, this critique would imply that no phenomenon could ever be seen as "real" or valid unless it is causally proven. This is a fairly strict positivist position. Though some people obviously understand the world this way, our interdisciplinary take on the perspective from nature concept differs from this positivist view on the need to test causality. Detailed qualitative data from two very different contexts (this study's context and Hawaiian land management (Gould and Lincoln 2017) include hundreds of peoples' reflections about how the non-human world brings them perspective. This is another form of causality, especially for scholars (such as us) who place value and credence in peoples' metacognition and reflection on causes of changes in their thinking. This critique helps to illuminate that a promising next step for research, especially research in a more positivist vein, would be to design experiments to test whether nature (versus other stimuli or context changes) is the source or cause of gains in perspective (Table 4).

Why perspective matters: an interdisciplinary interpretation of our findings

The idea of perspective as a benefit from nature (specifically, as a cultural ecosystem service) arose from analysis of qualitative data about human–nature relationships collected in Hawai'i, USA (Gould and Lincoln 2017). Hawai'i and Vermont are quite different socio-ecological contexts, so the prevalence of descriptions of perspective from nature in our Vermont-based data suggests that the phenomenon transcends context, at least partly. In addition to documenting perspective from nature in a distinct context, this paper seeks to explore why it might matter. In this section, we explore how perspective relates to five areas of study nested within sustainability science. We first note synergies between perspective and these existing fields, and consider questions such as: why might perspective from nature be important as a phenomenon and object of study, and why might it be

Table 4 Possible questions to guide future research on perspective from nature, and examples of how the questions could be explored

Example questions for future research on perspective from nature	Possible techniques that could be used	Details on techniques
Is it possible to intentionally induce perspective from nature, and what are the impacts of that inducement?	Experiments	Could employ a **Before–After–Control–Impact** (BACI) study. That is: Before–After: record potential outcomes of interest before and after intervention. These could include biophysical measures (e.g., heart rate, cortisol) and psychometric measures of perspective from nature (e.g., sense of groundedness, humility, self-importance) Control–impact: implement an intervention that attempts to induce perspective from nature (e.g., people look at nature photos and are asked to reflect on nature's scale, cycles, etc., and what that means for them) and a control group (e.g., people look at nature photos) (two controls, one with nature photos and one with non-nature photos, would be even more informative)
How long does the experience of perspective from nature last (is it transient or more long-lasting?), and what factors might impact its "stickiness"?	Longitudinal studies Correlational studies	Could investigate durability. That is, could investigate perspective from nature immediately following reflective time in nature, and then periodically for days, weeks, or months Could investigate factors associated with "stickiness". That is, could explore correlations with hypothesized factors, for instance, lifestyle habits such as amount of daily or weekly reflective time, or characteristics such as openness to change
Does perspective from nature help to reduce rumination (i.e., the rumination-reduction mechanism hypothesis)?	Experiments (assuming perspective from nature can be induced) Correlational studies	Could perform a BACI study. That is: before–after: measure self-reported rumination Control–impact: have two groups spend time in nature; for one, perspective from nature is induced (impact) and for the other not (control) Studies that investigate the impacts of nature exposure on rumination could include questions about self-reported perspective; investigate whether rumination is reduced more for people who report more perspective from nature
Is having greater perspective from nature associated with greater pro-environmental behavior or action toward sustainability?	Correlational studies Experiments (assuming perspective from nature can be induced)	Could conduct surveys that inquire after both perspective from nature and pro-environmental behavior, and investigate connections Induce perspective and then see if those for whom perspective is induced act more pro-environmentally (e.g., use fewer paper towels to clean up a non-accidental mess created by the experimenter or donate more money to an environmental cause)

helpful to better understand its presence and makeup (e.g., the aspects we identify)? We conclude each sub-section by reflecting on how perspective from nature might connect to transformations toward sustainability.

Multiple values of nature

Perspective from nature was originally suggested as a type of cultural ecosystem service; it thus informs part of the loose field of the multiple values of nature. The basic tenet of the multiple-values-of-nature idea is that we need to understand the value of nature in pluralistic ways (Jacobs et al. 2016, 2020)—we need ways to express why nature matters beyond monetization. An active area of research within this multiple-values field focuses on nonmaterial values; this research extensively recognizes the challenges in describing, characterizing, and measuring these nonmaterial aspects of value (Hirons et al. 2016; Small et al. 2017). Scholars, in academic work and in summaries via international bodies, are working to develop understandings and techniques that allow a richer, multifaceted portrayal of nature's importance (Diaz et al. 2015; Pascual et al. 2017).

Considering perspective from nature within the multiple-values-of-nature lens demonstrates, in at least four related ways, the complexity that would arise should we attempt to bring perspective from nature into decision-making—i.e., if we consider perspective as a benefit or value of nature (Satz et al. 2013; Small et al. 2017).

First, it is difficult to cleanly label perspective from nature within the ecosystem services "cascade"—i.e., as a service, benefit, or value (Potschin and Haines-Young 2013). One could argue that it is all three: an ecosystem provides (makes possible) perspective as a service; that service benefits people by increasing their perspective; and that perspective from nature is valuable/valued in multiple ways.

Second, a focus on perspective from nature as it plays into ecosystem valuation leads quickly to the question: how could we effectively express the value of expanding our perspectives? As with many other value-related concepts (e.g., health, community), the perspective itself is of value, yet it also leads to other valued ends (e.g., longevity for health, trust for community, reduced anxiety for perspective).

Third, and closely related, perspective from nature illuminates the relationality inherent in many of the values humans find most important. This connects to a recurrent, and deep, critique of the ecosystem services concept: that a one-way stream of "benefits from nature" is not the way to conceptualize ecosystem services. Ecosystem "services," instead, are produced as part of reciprocal relationships; services are embedded in and mediated by culture and reciprocal relations (von Heland and Folke 2014; Comberti et al. 2015). Perspective from nature is an example: it is perhaps best understood as an emergent phenomenon that arises from human–nature relationships.

Fourth, much research demonstrates that values can form, or be solidified, in the process of deliberation (Kenter et al. 2019). Our results suggest that another place of active refinement of values and priorities can be mindful attention to and experience of nature—experiencing nature in a way that brings perspective. This experience might even be considered trans-species deliberation: if people are empathetically open to nature, the "conversation" they have with the non-human world can help to solidify and define what is important to them.

Nature's mental health benefits

As noted in the introduction, extensive research demonstrates that exposure to nature benefits mental health and cognitive function (Bratman et al. 2012, 2019; Thomsen et al. 2018; Houlden et al. 2018). The phenomenon is clear; what is less clear is the explanation for the phenomenon. In our data, people overwhelmingly report that nature improves their mental health; here, we consider how perspective may relate to that mental health improvement.

One suggestion of perspective's role in nature's mental health benefits builds from recent research which suggests that nature exposure reduces rumination, and that reduction in rumination may underlie nature's mental health benefits (Bratman et al. 2015). Rumination is "the process of thinking perseveratively about one's feelings and problems" (Nolen-Hoeksema et al. 2008, p. 400), and it predicts multiple undesirable conditions, including depression, anxiety, substance abuse, and eating disorders (Nolen-Hoeksema et al. 2008). Bratman et al. (2015) found that rumination—both self-reported and as measured by MRI—was lower for participants who walked in a natural area than on a city street. Rumination reduction may, the study suggests, be a mechanism behind nature's mental health benefits. Yet this work does not explain *why* nature should reduce rumination.

One explanation offered to explain nature's rumination-reduction impact is that nature offers a positive distraction (Bratman et al. 2015). Yet, past work finds that distraction is often effective only for dysphoric participants—those with negative mood or outlook (Nolen-Hoeksema et al. 2008). Though the context of our study (the first few months of the COVID-19 pandemic) likely resulted in many participants exhibiting dysphoric mood, we think it unlikely that the hundreds of people who wrote unprompted comments about how nature helped them to avoid negative, self-focused thinking were all dysphoric at the time of writing, or at the time they described in their writing.

The depth and nuance in our results suggest that more than positive distraction might account for nature's rumination-reduction ability. People's descriptions of perspective,

along with the aspects of perspective that we identified in the data, provide rich evidence that nature not only *distracts* people from their thoughts, problems, and feelings—it offers a deeply meaningful counterpart to that self-absorption, for instance by engendering humility and reminding people of their priorities. The clearest example in our data is one respondent's description of the links between noticing seasonal change, a shift to a less individual- and human-centered perspective, and anxiety reduction: "Noting the incremental seasonal changes is soothing, it reminds me that the nonhuman world has its rhythms and dynamics, which helps me shift my focus. All of this has become crucial to managing the anxiety that comes up around the pandemic." This is more than mere distraction.

The six aspects of perspective from nature we identify may contribute, in subtle ways that need more exploration, to nature's ability to reduce ruminative thought. This reduction in self-focused rumination likely has implications for individual well-being, but also, as our discussions of mindfulness, humility, and empathy demonstrate, for broader societal well-being and sustainability transformations. More broadly, perspective may relate to (e.g., provide a potential mechanism behind) a variety of findings related to nature's pro-social impacts—for instance, that nature exposure reduces egoism (Joye 2020) and increases other-focused goals (Weinstein et al. 2009).

Mindfulness

In recent years, scholars have argued that sustainability science should focus on mindfulness as an important tool. These scholars discuss how mindfulness has benefits both at the individual and collective levels. Individual benefits include "increased well-being, value clarification, awareness, empathy, and compassion" (Ericson et al. 2014, p. 74). This research suggests that these impacts, in turn, will contribute to sustainability transformations—for example, via reduction of an addictive focus on consumption (Ericson et al. 2014; Koger 2015; Wamsler 2018).

Mindfulness can be defined as "intentional, compassionate, and non-judgmental attentiveness to the present moment" (Wamsler et al. 2018, p. 144). Fundamentally, mindfulness is about having accurate understandings of reality. The concept of perspective shares this core feature: perspective is about offering a "reality check" and gaining a realistic perspective of one's proper place in the natural order. This research suggests a nuance to the well-known finding that nature encourages mindfulness (Djernis et al. 2019): that, in particular, a sense of perspective from nature may be one way that mindfulness manifests, or a sub-component of mindfulness, in the context of nature experience.

Two studies that advocate that sustainability science address mindfulness suggest that mindfulness will lead to greater pro-environmental behavior (Ericson et al. 2014; Wamsler 2018). Our respondents almost never discussed pro-environmental behavior, nor did they connect their experiences of perspective in nature to action. Yet the research reviewed here suggests that, due to the synergies between mindfulness and perspective, a connection to action is possible and even likely. Given the multiple calls for the crucial role that mindfulness can play in transformations toward sustainability, it is important to consider the many ways that mindfulness can manifest, and what can encourage it.

Humility

Humility has received extensive attention in environmental philosophy and the environmental humanities more generally (Niemann 2017). Though it is less studied in the environmental social sciences, that may be changing; one recent paper in *Organization & Environment* (a social science journal) proposes a "'humility-based approach' toward the environment that entails an appreciation of humanity's proper place in the natural order" (Sadler-Smith and Akstinaite 2021, p. 1). This proposal of what a humility-based approach would entail resonates strongly with the idea of perspective, to which the idea of an appreciation of "one's proper place" is central.

Ecocritical scholar Josh Weinstein points out humility's "seemingly absent utility in a materialistic world often dominated by greed and ambition" (Weinstein 2015, p. 5). Multiple scholars discuss the damaging environmental impacts of human hubris (Washington et al. 2021), and some present humility as an important countering force (Sadler-Smith and Akstinaite 2021). Humility, these scholars suggest, might be an important tool to help us refigure our relationship with the environment so that we can collectively recognize humanity's appropriate place in the world and act accordingly (Weinstein 2015; Sadler-Smith and Akstinaite 2021). The question then becomes: how do we foster humility? Our data suggest that perspective from nature may be one source of expanded humility.

Multiple aspects of perspective that we identified align with concepts related to humility. Many respondents mentioned that nature helps them transcend not only their focus on themselves, but also their focus on the human species. This expansion of the realm of concern beyond humans is a form of humility foundational to environmental ethics (Leopold 1949; Niemann 2017; Gottlieb 2019). Weinstein describes how "humility involves at its root an understanding that we are smaller than, and rooted in, the earth" (Weinstein 2015, p. 3), and many respondents discussed this scale-related humility. Scholars have also connected the concept of being "grounded," which many of our respondents

mentioned verbatim, to the essence of humility, a word derived from humus—ground (Weinstein 2015).

Some research draws on Buddhist philosophy to connect humility directly to mindfulness; it suggests that humility is "the opposite of inattentiveness." This viewpoint sees

> "attentiveness as the key, or even generative, component of humility. The implicit argument here is that if we attend to the beauty and wonder inherent in our collective and interdependent existence in, and indeed through, the world we will intuitively and logically arrive at a feeling of humility which acknowledges not only our smallness with respect to the workings of the world with which we interdepend, but also a deep sense of caring and responsibility toward the same" (Weinstein 2015, p. 9).

After connecting humility to mindfulness, Weinstein essentially describes our concept of perspective from nature—that attending to nature can lead to humility. He then goes one step further, to say that that acknowledgement will lead to caring. As was the case with the intertwined concept of mindfulness, though we do not see this connection to action in our data, it is a reasonable prediction worthy of further research.

Humility also relates closely to the concept of awe, an emotion associated with impressions of vastness and the need to incorporate new information (Keltner and Haidt 2003). Awe is both important to diverse long-standing traditions and on the rise as a focus of academic research. Scholars have pointed out the interconnections between humility and awe in traditions such as Daoism, which suggests that awe in the face of natural phenomena is one way to cultivate humility (Parkes 2012); more generally, awe has long been considered a spiritual or religious emotion (Gottlieb et al. 2018), largely because of its connections to humility. These traditional understandings share many similarities with perspective from nature. More recently, researchers engaged in "the science of awe" have found that awe (which is most commonly elicited through exposure to nature in some form) is related to feelings of a "small self" (Piff et al. 2015; Nelson-Coffey et al. 2019). The "small self" concept is clearly connected to perspective from nature. Scientists have similarly found that feelings of awe lead to humility (Stellar et al. 2018). Perhaps a perspective from nature, of which humility is a part, could be considered one outcome from nature-inspired experiences of awe.

Humility also intertwines with the other topics we discuss and has obvious connections to transformations toward sustainability. Modern, and particularly modern Western, society is not particularly known for expansive views of time or for having an accurately humble view of human importance with respect to other lifeforms. Yet, it is arguably necessary that humans acknowledge that we are not the most important beings in the universe. Our data suggest that attending to nature can help people gain perspective and humbly acknowledge their own smallness and interdependence. The questions then become: what do people do about this feeling that they and their problems are not as important as they thought? Does it make them feel small and powerless, so why try? Or does it make them realize that they're part of a system and need to act like it, and support the system? Future research can investigate these questions.

Empathy

As with mindfulness and humility, scholars have recently suggested that empathy is a crucial area of study for sustainability science (Brown et al. 2019). This work advocates for deeper investigation into underlying phenomena that explain humanity's apparent inability to effectively transition to sustainable futures, and suggests empathy (and its absence) as one of these phenomena. It suggests, mirroring the work described in the mindfulness section above, that empathy will lead to more pro-sustainability action, and thus advocates for understanding what leads to empathy, how empathy functions, and how it might lead to change.

Empathy is often defined as understanding and feeling the emotions of another. Most research on empathy focuses on human–human relationships, but an emerging body of work addresses human empathy with non-human entities; this paper contributes to the latter. Better understanding of how humans may feel empathy with non-humans, and the importance that understanding may have for sustainability, relate to the idea of relational values mentioned above; indeed, recent work demonstrates close connections between expressions of empathy and of relational values in interviews about human–nature relationships (Hagen and Gould 2022).

The concept of empathy relates closely to perspective-taking: the practice of attempting to understand the experience of another from their point of view. Perspective-taking can induce empathy both between human beings (FeldmanHall et al. 2015) and between humans and non-human nature (Hahn and Garrett 2017). Both of these types of empathy (with other humans and with non-human nature) can correlate with pro-environmental behavior (Swim and Bloodhart 2015). Our definition of perspective differs from the "perspective of another" definition used in perspective-taking, but the two may be related. Our more general sense of perspective may result, at least partly, from transcending one's personal issues and viewing the world from the perspectives of other entities. From the perspective of the forest, for example, humans' individual problems are not monumentally consequential, and scales (geographic and time) are huge. Some of the comments coded as humility, for instance, hint at perspective-taking, even if it is unconscious. Though none of our respondents explicitly said they

took the perspective of nature or its components, a few wrote comments such as that reflecting on "the timelessness of nature, which for the most part doesn't know that we're in a global pandemic, reminds me that this too shall pass." These comments indicate some degree of perspective-taking as a way to access the "perspective" that is the focus of this article. The idea of taking the perspective of nature—e.g., of thinking like a forest or a mountain—may be difficult to grasp for the Western mind, but it is integral to other ways of knowing (Kohn 2013) and appears in foundational Western conservation thinking (Leopold 1966). Though we saw only a few examples of this perspective-taking, our data suggest that there might be openings for that thinking, if possibilities for it were encouraged.

Empathy connects to our other themes and to sustainability transformations in myriad ways; scholars from diverse disciplines have noted empathy's potentially transformative potential (Rifkin 2009; Krznaric 2014). One review on mindfulness in environmental action proposes that mindfulness positively affects empathy, which in turn leads to sustainable behavior (Ericson et al. 2014). Research demonstrates correlations between empathy and pro-environmental behavior (Berenguer 2007), and there are many potential reasons for this correlation. One reason relates to the tendency of humans, particularly modern humans in the developing world, toward egocentrism, which has numerous negative consequences for society and the biosphere (e.g., Bazerman 2005). Perspective counters egocentrism. This suggestion links back to research on mental health; psychological research demonstrates the many negative well-being implications of self-referential narratives (Lin et al. 2018). This work helps to explain why empathy has many personal benefits (Wagaman et al. 2015); it shifts the focus outside of oneself. Empathy's benefits also obviously extend beyond the individual in many ways; as one specific example that is highly relevant to transitions toward sustainability, self-focus (i.e., a lack of empathy) impedes our ability to accurately assess what is fair in complex environmental decision-making (Bazerman 2005; Engler et al. 2019).

Methods considerations and next steps

Sampling during the COVID-19 pandemic The timing of our sampling presents both benefits and drawbacks. Benefits include that the dramatic societal conditions may have helped to illuminate a benefit that is always present, but perhaps often less top-of-mind and easy to articulate. The unprecedented conditions may have aided people in expressing difficult-to-articulate aspects of their psychological experiences in nature (Gould and Schultz 2021). The primary drawback is that we cannot determine whether responses would be different in other time periods because we have no non-pandemic sample for comparison. Future research could help to address this drawback by exploring whether the aspects of perspective we identified are present in people's experiences during less tumultuous times.

Distinguishing perspective from other constructs, especially escapism Previous research on perspective from nature details how perspective differs from spirituality, education, and inspiration—other commonly identified cultural ecosystem services (and aspects of human–nature relationships) (Gould and Lincoln 2017). Our data suggest another distinction—this one equally as important for understanding what perspective is (and is not), and why it might be important. In our data, people also referred to what we call escapism—nature's role as a place of escape or refuge from the concerns of the world. In an example of escapism, one respondent noted feeling "lucky to be able to escape to my woodlot into the secure arms of Mother Nature," where "the problems of the world are swept away, even if for only a short time." Perspective is distinct from escapism in a crucial way: attentiveness vs. avoidance. Perspective is about attentiveness to the world—a real, more accurate sense of what is going on. Escapism is about avoidance—a refuge from reality's complexities and difficulties. We think it likely that escapism was particularly strong in our data because we collected data during the uncertain, stressful first months of the COVID-19 pandemic, when "getting away from it all" was particularly desirable for many people. Yet despite this likely tendency, we still observed hundreds of references to perspective.

Limitations and future research This study does not address the many equity considerations indispensable to sustainability science. Our study population was residents of Vermont, USA who volunteered to share thoughts about their connections to nature during the pandemic. Notwithstanding efforts to reach and incentivize participation from the broadest array of people possible, and also simply reflecting the demographics of the study area, this sample is more white, more highly educated, and of higher income than most populations in the USA and around the world. This unfortunately mirrors existing research in many of the realms described above; psychological research on nature's mental health benefits, for instance, has been conducted primarily with W.E.I.R.D. populations (Gallegos-Riofrío et al. 2022) [though exceptions, specifically important work from Japan and Korea, exist; Park et al. (2009), Lee et al. (2011), Shin et al. (2011)]. As currently conceptualized, W.E.I.R.D. describes participants in Western, Educated, Industrialized, Rich, and Democratic societies (Henrich et al. 2010; Muthukrishna et al. 2020). For our data, "W" might appropriately denote not only "Western," but also predominantly "White."

Crucial to the conversation of how nature impacts people is that for some people, going outside can engender anxiety. This reality is particularly true for people of color in the USA and elsewhere (Agyeman and Spooner 1997; Finney

2014). This racial discrepancy is, we argue, the most important future research direction in this field. Next steps in this research must explore this phenomenon in more diverse contexts, with a focus on how the experience of perspective from nature may differ for people from different backgrounds and with different racial or ethnic identities. If being outside is scary—especially for reasons related to systemic -isms (e.g., racism, sexism)—it is unlikely that nature will offer the sense of out-of-oneself perspective that our research suggests is so powerful for people who can move freely, without fear, outside. This equity issue, with its spiraling causes and implications (Kendi 2017), cannot be ignored, especially in our current social–ecological context. Relatedly, it may be productive to explore perspective and its relationships to concepts like mental health, empathy, mindfulness, and egocentrism in societies that are less individualistic than the USA, where a tendency toward self-focus is likely to operate differently.

The methods we use are effective for understanding the richness of a poorly understood phenomenon—in this case, perspective from nature. As noted above, they are not suited to test causal or mediative effects. Our work suggests multiple potential pathways to better understanding more about perspective from nature and why it might be important. Examples of questions that future work might ask are provided in Table 4.

Conclusion

Academic literature has called for research on "positive emotional connections" with nature and "non-material causation" as important to sustainability science (Wamsler 2018, p. 143). This research answers both of those calls. Our analysis suggests that perspective from nature is an aspect of human–nature connection that may have important implications, for individual human well-being and (more speculatively) for transformations toward sustainability.

At individual levels, a better understanding of perspective from nature might impact mental health professionals' prescriptions and suggestions (Kondo et al. 2020). Recommendations might include, for example, intentional reflection on non-human surroundings. At a more collective level, connecting this analysis to multiple intersecting fields in sustainability science further suggests that the concept of perspective could potentially play a role in transformations toward sustainability (Chan et al. 2020). Though connections to larger patterns of sustainability transformation are not immediately evident in our data, the seeds of such suggestions are there. Specifically, solutions to problems as complex as achieving sustainability require that we confront our current reality, reflect on what matters most to us, and approach the world with humility and respect for natural cycles (Sandel 2020; Sadler-Smith and Akstinaite 2021); the perspective from nature concept suggests that nature experience can encourage those practices. What is more, connections between perspective from nature and the multiple intersecting fields we discuss suggest that perspective is closely connected to this type of deeper societal awareness and discussion.

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