

# Understanding the lived experience of connection to nature

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## Abstract

There are multiple theoretical understandings of connection to nature. Often, scholars define a connection to nature as being the outcome of a process of awakening “biophilia.” They may also define it as the maturation or development of an “ecological self,” where one sees nature as part of oneself, or as an awareness of oneself as a member of a wider biotic community. Using evidence from longitudinal in-depth interviewing and participant observation, this article examines these differing conceptualizations of connection to nature in lived experience. We find that feeling connected to nature is about feeling an affinity for, and that one belongs within, a wider web of nonhuman relationships. This sense of feeling connected to nature is unstable; it may be felt and then recede according to the circumstances in which people live and their competing priorities. The difficulty of sustaining consistent close relationships with nature in everyday life presents some challenges to the hope that enabling people to feel connected to nature will induce reliable pro-environmental behavior. Relationships with nature fluctuate, and it is necessary to examine how a connection to nature can be nurtured at every stage of life.

## KEYWORDS

biophilia, ecological restoration, Leopold, qualitative

## 1 | INTRODUCTION

Scholars from a wide range of disciplines have observed that humans are more disconnected from nature than they were in the past (e.g., Marczak & Sorokowski, 2018; Restall & Conrad, 2015; Turner, Nakamura, & Dinetti, 2004). This lack of contact with nature is thought to embed understandings of nature which overlook human dependence upon nature, and diminish feelings of empathy and responsibility toward nonhumans, creating a “cycle of disaffection toward nature” which enables ongoing environmental destruction (Soga & Gaston, 2016). Drawing upon these observations, there is a diverse multidisciplinary body of work that seeks to

better understand human connection to nature (comprehensive reviews can be found in Ives et al. (2017) and Restall and Conrad (2015)). Within this body of work, different ways of operationalizing and measuring a connection to nature exist (see Tam, 2013), these rest upon three main conceptualizations of connection to nature drawn from environmental philosophy and ecology.

First, empirical work often draws upon a definition of connection to nature as a state which is attained via a process of awakening “biophilia” (e.g., Clayton, 2003; Dutcher, Finley, Luloff, & Johnson, 2007; Kals, Schumacher, & Montada, 1999; Nisbet, Zelenski, & Murphy, 2009; Perkins, 2010). The term “biophilia” was first used by Fromm to mean a love of life (Eckardt, 1992;

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Fromm, 1964), later it was popularized by Edward O. Wilson. Wilson's (1984) "biophilia hypothesis" proposes that humans have an innate tendency to affiliate with life and lifelike processes, meaning they are predisposed to feel an affinity for nature. For Wilson, circumstances which foster feelings of affinity for nature, or biophilia, are key to stimulating pro-environmental behavior. Biophilia has captured the imagination of scholars, remains central to discussion about connection to nature and continues to underpin research into connection to nature (e.g., Marczak & Sorokowski, 2018; Whitburn, Linklater, & Wokje, 2020).

Second, a connection to nature is often characterized as the maturation or development of an "ecological self" (e.g., Chawla, 1998; Nisbet et al., 2009), or similarly, as a state where one sees nature as part of oneself (e.g., Mayer & Frantz, 2004; Schultz, 2002). The "ecological self" is a concept developed by philosopher and deep ecologist Arne Naess. Naess sees human connection with nature as possible through an ontological shift in one's understandings of one's self in nature. Naess (1987, 1989) sees this as a developmental process whereby one makes a psychological shift from a lack of identification with the nonhuman to seeing all nonhuman biotic and abiotic phenomena as part of oneself: extending one's field of empathy beyond humans to incorporate nonhumans. Through this process, one is said to achieve "self-realization" and to develop an "ecological self." Led by Bragg (1996), this idea has become established in empirical research, providing an understanding of connection to nature as a state wherein humans see nature as part of themselves. (e.g., Kamitsis & Francis, 2013; Richardson & Sheffield, 2015).

Finally, a connection to nature is frequently understood to be an awareness of oneself as a member of a wider biotic community (e.g., Dutcher et al., 2007; Mayer, Frantz, Bruehlman-Senecal, & Dolliver, 2009; Perkins, 2010; Schultz, 2002). This is the concept of ecologist and philosopher Aldo Leopold. Leopold's conceptualization of a connection to nature is a state wherein humans see themselves as part of a community of nonhumans: "soil, waters, plants, and animals, or collectively, the land." (Leopold, 1966). In his "Land Ethic" Leopold describes a person who is connected to nature as one who understands "land as a community to which we belong" (Leopold, 1966).

Researchers frequently incorporate more than one of these main ideas into their work, though they do not necessarily draw upon the traditions explicitly. For example, the concept of "Nature Relatedness" (Nisbet et al., 2009) draws upon both biophilia and the idea of the ecological self. Whereas the "Nature in Self" concept (Schultz, 2002) sees a connection to nature as "the extent to which an

individual includes nature within his/her cognitive representation of self" (p. 67), as well as the extent to which one regards oneself as a member of a wider biotic community. Despite the prevalence of empirical research that draws upon the ideas of Wilson, Naess, and Leopold to examine connection to nature, there has been limited examination or evaluation of these ideas as they relate to the lived experience of connection to nature. Thus, the aim of this research was to examine the ways in which Wilson's (1984) concept of biophilia, Naess's (1987, 1989) concept of the ecological self, and Leopold's (1966) understanding of humans as part of a wider biotic community are present in the lived experience of connection to nature.

## 2 | METHODS

While the aim of the research was to examine the understandings of connection to nature held by research participants who felt themselves to be connected to nature, the objective was to examine *if* and *how* Wilson's concept of biophilia, Naess' concept of the ecological self, and Leopold's understanding of humans as part of a wider biotic community are present in the lived experience of connection to nature. The research question guiding this aspect of the study was: what sort of human–nature relationships do people experience when they feel themselves connected to nature?

Many activities have been hypothesized to foster a connection to nature. Examples include individual therapy and reflective diary writing (Richardson & Sheffield, 2015; Roszak, 1995), group therapy and reflective workshops, meditation, and mindfulness activities (Cohen, 1993; Higgs, 2003; Macy & Brown, 2014; Naess, 1995), unstructured play, environmental education and alternative schooling (Chawla & Cushing, 2007; Ernst & Theimer, 2011; Louv, 2009), walking, hiking, surfing, and extreme sports (e.g., Brymer & Gray, 2010; Hill & Abbott, 2009; Roberson & Babic, 2009), hunting, fishing, foraging, and collecting foods (Chawla & Cushing, 2007; Leopold, 1966; Urquhart & Acott, 2014), wilderness travel and camping (Barton, Bragg, Pretty, Roberts, & Wood, 2016; Bragg, 1996; Grimwood, Haberer, & Legault, 2015), bird-watching, ecological surveying, citizen science, and research (Kellert & Wilson, 1995; Schultz, 2011), gardening and farming (Hale et al., 2011; Leopold, 1966; Natori & Chenoweth, 2008), caring for animals (Kellert & Wilson, 1995; Vining, 2003), conservation (Guiney & Oberhauser, 2009; Lokhorst, Hoon, le Rutte, & de Snoo, 2014; Zylstra, Knight, Esler, & Le Grange, 2014), and ecological restoration (DiEnno & Thompson, 2013;

Higgs, 2003; Leopold, 1966; Miller, 2005; Pyle, 2003; White, 2012; Zylstra et al., 2014). A case could be made that any of these activities warrant further research. However, ecological restoration was chosen as the site for this study, because of the persistence of claims that restoration enables connection to nature. Since the first restoration initiatives began in the 1930s, these claims have been made, and continue to be made today (Martin, 2017). Recently, it has been claimed that hands-on ecological restoration can play a role in enabling societies to resolve environmental crisis, by governmental and nongovernmental organizations (e.g., Keenleyside, Dudley, Cairns, Hall, & Stolton, 2012; McDonald, Gann, & Dixon, 2016; Parks Canada, 2011) and scholars from a wide variety of disciplines (DiEnno & Thompson, 2013; Higgs, 2003; Jordan, 2003; Light, 2000; Miller, 2005; Pyle, 2003; van Wieren, 2008; White, 2012; Zylstra et al., 2014). Usually, defined as “the process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed” (Society for Ecological Restoration International, 2004, p. 3), ecological restoration has long been understood as an opportunity to bring together people and nature.

Using the ideas of Wilson (1984), Naess (1987), and Leopold (1966) as an initial starting point, a qualitative approach was used to draw out a wide array of experiences of connecting to nature. This approach finds support from recent reviewers of the connection to nature literature who recommend that qualitative techniques be used to broaden and deepen understanding of the experience of connection to nature as it is lived (Restall & Conrad, 2015; Zylstra et al., 2014). Research that has examined the practices through which people build particular ideas of nature (e.g., Cater & Cloke, 2007; Macnaughten & Urry, 2001), provided a foundation for the research. Cater and Cloke (2007) note that an ethnographic approach lends itself most logically to these themes.

To consider how a sense of connection is experienced, we examined the understandings that emerged from participant engagement in one case of ecological restoration. The choice of case was theoretically guided, and was chosen as a “crucial case” of the specific type of restoration practice that it is claimed can produce a sense of “connection to nature.” This crucial case “offers the circumstances which enable the analyst to reject some theoretical proposition” (Mitchell, 1983). The Trees for Life project in Scotland, a restoration initiative that works to provide its participants with “a deeper sense of connection with nature” (Trees for Life, 2015), hosted the research.

Guided by the Cardiff University School of Social Sciences Research Ethics Committee (reference: SREC/1583), data collection involved living and working with volunteers at Trees for Life, participating in all their usual

activities, making field notes, taking photographs, and carrying out in-depth interviews. This kind of volunteering involves small groups of people, who usually do not know each other, living together for a week in the remote Highlands while doing practical restoration work. All participants who attended these “conservation weeks” during the data collection periods ( $n = 74$ ) took part in the research. During the first data collection phase, the researcher attended 4 weeks in full, living and working alongside four cohorts of volunteers. Initial in-depth interviews with 37 participants were carried out during the conservation weeks. These interviews ranged from 15 to 60 minutes. Half of these participants were interviewed again 8 weeks later, after they had returned home, to gain an understanding how a sense of connection to nature persists over time (McLeod, 2003). These interviews were conducted over the phone and were between 30 and 70 min. Initial analysis of data from this first phase was then carried out. After this initial analysis, there was a second data collection phase during which the researcher visited four more conservation weeks, each for a 24-hr period, and worked alongside volunteers carrying out additional interviews with 37 new participants.

The interviews were semistructured, using a script of questions. In the first data collection phase, the script was developed from the original research questions, in the second phase the script was adapted according to the initial analysis and feedback from colleagues. The approach of analyzing one cohort of participants and then comparing them with a second cohort of participants was used to establish whether there tended to be a consensus about issues arising, or whether topics were contentious (or simply unimportant) to other participants (Kvale & Brinkmann, 2009). Taking photographs, writing, and interviewing during participant observation are conventional ethnographic data collection methods: the use of multiple data collection sources enables a degree of triangulation, meaning analysis does not rely solely either on what participants say or what the researcher observes. Field notes and photos were taken throughout the data collection periods to complement and enable the development of the interviews.

Interviews were analyzed with an iterative thematic approach using a coding procedure derived from Strauss (1987), Miles and Huberman (1994), and Coffey and Atkinson (1996). This involved recording, transcribing verbatim and anonymizing interviews and then ordering all the data (using the software package NVivo) and identifying themes within the data. The initial analysis was a process of revisiting the research question and coding (categorizing) any relevant data. For example, any data that gave an indication of participants' understandings of nature were coded initially as “nature.” The second stage

involved identifying “in vivo” themes that were present in the data, and coding them accordingly; these were strong themes that emerge from the data, but that were not foreshadowed by the literature. The analytical notes and reflections taken during fieldwork were helpful in identifying themes that were not previously highlighted by the research question or theoretical literature. In the next step of the analysis each theme was described, and the links between themes were developed into core concepts and interpretations (Miles & Huberman, 1994) with the aim of offering “plausible accounts” of the nature of the phenomenon under investigation (Sennet, 1977). These plausible accounts were then interrogated by colleagues and developed by attending more conservation weeks during the second data collection phase to look for any inconsistencies and negative examples. This thematic analysis was carried out iteratively until no new themes arose (data saturation was reached (Fusch & Ness, 2015)), and the definitive findings emerged.

### 3 | RESULTS

Most participants were from Scotland or England, with six from other countries (Northern Ireland, Wales, Germany, Poland, Switzerland, and Sweden). The age range was from 19 to 78, with twice as many participants between 19 and 39 as those over 40. There were twice as many men as women. In terms of occupation, there were usually health, education, green and white-collar professionals, students, ex-military personnel and retired people present in each cohort of volunteers. This demographic profile is typical for environmental volunteering in the United Kingdom (Campbell & Smith, 2005). There were no trends in the data which suggested that participants' demographic characteristics related to how they thought about nature.

In terms of biophilia, the themes that arose were those concerned with the emotions that participants experienced while immersed in a natural environment. We found that participants' previous experiences of nature tended to inform their responses to nature while on the conservation weeks. For many participants, a sense of connection to nature was something they had felt since they were children. Indeed, some participants understood a love of nature as part of the human condition: “... I feel that it's very much part of who we are...” (FD11AF). For some, a connection to nature was an arrival home to one's true self and for many, a connection with nature was understood as something innate. Participants spoke about having long had a “latent” (D2-1) desire to live in a way more connected to nature. Overall,

participants had an affective affinity with nature, and they often spoke of a deep love of nature. Here a participant explains how this sense of connection is different from a knowledge based understanding of nature:

*“I'm not a religious person ... I'm not a superstitious person, I'm not into deities, or rituals or anything like that at all. But I have always felt very, very powerfully moved when I've been outside in nature...It's a bit deeper than just having an academic knowledge, it's a bit deeper than just having read up on something or been interested in something, it is that you actually feel something.” (D2-1)*

While almost always emotional, the experience of being immersed in nature was not always a positive experience. For those unused to being outside urban areas the scale and exposure of the Highlands was sometimes seen as “freeing” (D3-1) but for others it was frightening:

*“I actually feared for my own existence being out here on the hills, it was terrifying for the first day, we were walking through that bog and the sense of isolation, I knew I was with people, but I felt really alone and vulnerable, and I had to battle some of that angst ...I'm so tiny and I'm such an urbanista.” (C2-4)*

The participant went on to say: “I just saw a hostile environment ... I was sure I would break my ankle and have to be helicoptered off the hill...” (C2-4). For approximately 10% of volunteers the experience of being in the vast and largely uninhabited landscape of the Highlands, away from familiar infrastructure such as roads could be alarming or overwhelming, for them nature initially felt menacing or intimidating.

In terms of the ecological self, the themes that arose were those that involved participants incorporating non-human nature into their sense of self, or expanding their circle of empathy to incorporate nonhumans. Empathy was often present in how people described their experiences of nature, as in this example:

*“I thought I'd go and sit under [a tree] and then I saw all of the young ones around it and the regeneration around it. I just got the feeling that that the tree was really happy because after 200, 250 years of all of her offspring being eaten finally she had her babies, her family around her. I can't explain how or why, but I knew that the tree was happy and that made me happy.” (D10F)*

Some participants used language that implied that they saw nature as part of themselves, as participant T7 said when asked whether he felt a connection to nature: *“that’s like asking me do I love my wife? Do I love my children...it’s part of who I am...”* However, this is not quite what Naess describes. For Naess, the “ecological self” is an understanding of the natural world which is radically different to most Western understandings of humans and nature. Naess (1987) uses indigenous Finno-Ugric Sámi understandings of nonhuman nature to illustrate his point: in Sámi understandings of the world, it is inconceivable that one would be separate from nature because the duality of nature and culture does not exist. The participants in the research described a sense of connection with nature as hard to disentangle from their identity, but they often talked about leaving and returning to nature. This would not be possible for someone who had incorporated nature into their sense of self. For the participants nature was rather something outside themselves to which they felt a connection.

This “leaving and returning to nature” was a strong recurrent theme, participants talked about being *“sucked back in”* (D2-3) to modern life upon returning home, describing that the sense of connection to nature that they felt on conservation weeks got *“knocked out”* (FD7 and T8) of them. Here, a long-term participant who had attended over 80 conservation weeks talks of his experience of losing and finding connection throughout his life: over time the desire to connect to nature competed with other priorities and circumstances:

*“I’ve always had that sort of connection with nature...since I was a kid. I got really into drugs and really into drink and I lost that nature connection stuff and then I was getting into it again and then I went to prison for a while and I lost it again...I found it again, but then I got wrapped up in the same drink and drugs scene...I wish I’d found it and kept it the whole time. It’s always been there... and now I’m holding onto it.”* (T9F)

Desire for other things can crowd out a connection to nature. Here a participant who works as conservation ranger at home explains how her everyday social context changes her priorities:

*“[When I go home I feel I should] ... be a successful participant in modern society...those things don’t really matter out here. It doesn’t matter if you’ve got a nice car or a nice home out here.”* (GA6F)

The implication here is that the appearance of one’s car or home does matter in everyday life, perhaps more than nature.

She was surrounded by nature every day in her job, but the way she thought about it was different:

*“...when I’m in the Lowlands and driving round, I’ll be looking at everything through my working eyes...you even... I was going to say objectify the countryside, but the things... you are categorizing them, it’s the work thing...they become part of the stress...You can make them into work.”* (GA6F)

Nature became something that was associated with work, rather than something to which it was possible to connect. In the interviews carried out after participants had returned home it emerged that urban living, long indoor working hours and commuting by car or public transport mitigated against a resilient sense of connection to nature, whereas connection was maintained by ongoing environmental volunteering and similar nature focused activities.

It was Leopold’s idea of membership of a wider biotic community that arose with the most frequency and clarity when participants described their connection to nature. Here, one of the leaders of the conservation weeks talks about a group he worked with and explains how they understood their connection to nature:

*“Even though they were surrounded by nature all their life...they never noticed it... [they then realized] they were part of nature, if you know what I mean.”* (T9F)

Almost all participants understood nature as something which was bigger than oneself and to which it was possible to feel connected, or part of: a wider web of relationships with the nonhuman world. For many participants this was a profound and affecting insight which felt integral to their identity or sense of self:

*“...it really hit me when I was volunteering... ‘This is part of me. I’m part of that and I’ll never be able to break away from that now wherever I go’.”* (GA2)

For some, this feeling of belonging meant they felt a responsibility, they saw their decisions as part of something bigger than themselves:

*“...it has made me think of my part in playing a small role in a much bigger picture.”* (FT1)

*“I think it's because we're interacting...when you come here you see the broken ecosystem and landscape. You're coming here planting trees and you're playing your role in building it and you're just... it's like you're fitting in to the ecosystem in a way. You're planting a tree; you're sowing the seed of life. You're generating it.” (GA8)*

For these participants, connecting to nature was about belonging: a process of taking one's place within an ecosystem.

## 4 | DISCUSSION

A connection to nature was often felt as an affinity for nonhuman nature. This initially looks supportive of the concept of biophilia, indeed, this feeling of affinity and of coming home to a true self may be what Wilson (1984) has captured in the biophilia idea. However, although Wilson is accurate in the sense that participants' sense of connection with nature was deeply affective, a love for nature was only one among a variety of emotions, including fear and anxiety, which were provoked by spending time in nature. Relationships with nature were more nuanced and varied than Wilson's biophilia concept suggests. Research into human–nature relationships needs to consider a far wider range of possible responses to nature and acknowledge the complex relationships that people may have with non-human landscapes, particularly among those who have spent limited time outside urban environments. Naess' concept of the ecological self also bore limited resemblance to how people understood their sense of connection to nature. Participants who experienced a sense of connection to nature did not see nonhuman nature as part of themselves, for them, nature was separate and external; it was something that they could leave, forget about, or lose and come back to. Rather, the findings suggest that a connection to nature is best described as a sense of belonging to the natural world, drawing on the description suggested by Leopold. It was typical for participants to describe their sense of connection to nature by saying that they felt that they were “part of nature,” a phrase which is most resonant with Leopold's conception of a connection to nature as an understanding of oneself as being part of a community of nonhumans (Leopold, 1966).

In common with Tam (2013), the findings of this research suggest that there is a real need to re-examine conceptualizations of human–nature connection. Currently, the multiple theoretical understandings of connection to nature present within the field (such as those of Naess, Wilson, and Leopold) mean that research findings often have divergent and incommensurate meanings, even when they seem to be considering the same topic. Research into

connection to nature aims to improve understanding about human–nature relationships, and much of it makes a causal inference between individual ability to connect to nature, and the possibility of pro-environmental social change to resolve environmental crisis (Lokhorst et al., 2014; Schultz, 2002). If we (researchers, policymakers) are to invest in this idea that people who experience a connection to nature are more likely to be supportive of policy actions which protect nature, then it is essential that that we can use the most resonant and accurate language in research and policy to describe what it is to feel connected to nature. If we talk about connecting to nature in Naess' terms and fail to recognize that people's experiences are not those described by Naess, but those described by Leopold, then we miss an opportunity to more deeply understand how society could protect nature and harness the passion and drive of these people. For example: if connection to nature is felt as belonging, practices which nurture belonging and encourage people to feel part of the ecosystems in which they live may be effective in enabling them to link their actions to the nature around them.

We also found that a sense of connection to nature was ever-changing, and that there was real difficulty in sustaining the sense of connection to nature that participants felt while working on conservation weeks. If a feeling of connection to nature is not to fade, it must be sustained by ongoing engagement in similar practices. This research suggests that particular tasks and discourse are powerful tools for enabling a sense of connection to nature. Without similar practices that maintain or develop a sense of connection to nature, the relationship with nature that participants felt during conservation weeks will fade or become fragmentary after their return home. The ability to maintain a resilient sense of connection with nature is enmeshed with other obligations and life practices. Restoration work may play a different role in one's life if it is carried out as a professional rather than as an unobligated volunteer participant. A sense of connection to nature is unstable, nuanced and fluctuating, it may develop, but it can also recede. If a connection to nature is to endure, it requires time and regular attention.

This research was limited in ways which future research may be able to address. The case study approach focusses on the phenomenon of connection to nature itself, rather than the individual experience. It would be beneficial to examine individual experience of connection to nature over time throughout individuals' life course and how these experiences relate to demographic characteristics and life experiences. The finding that connection to nature evolves throughout life, and is unstable with periods of decline and regrowth, poses interesting challenges for policy: for example, conservationists cannot rely on connecting children to nature and assume that this early experience will

necessarily create an enduring affiliation with nature. We found that an experience of connecting to nature often made participants more amenable to changing their behavior, but the possibility of making changes was profoundly shaped by their ability to prioritize their relationship with nature in the modern, high consumption environment in which they lived day to day. Everyday practices which enable people to sustain a consistent sense of belonging to a wider biotic community may be important in fostering pro-environmental behavior that endures over time.

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## CONFLICT OF INTEREST

The author declares no conflict of interest.

## AUTHOR CONTRIBUTIONS

**Ella Furness:** Designed and conducted the research, carried out the data collection and interpretation and wrote and edited the manuscript.

## DATA AVAILABILITY STATEMENT

Supporting data are available on request: please contact sustainableplaces@cardiff.ac.uk or the corresponding author.

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