

PRACTICAL ARTICLE

How participation in ecological restoration can foster a connection to nature

Ella Furness 

There have been strong claims made for ecological restoration's potential as a practice which is conducive to rethinking relationships with nature. The involvement of lay people in "hands-on restoration" is thought to hold potential for enabling re-examinations of human connection to nature. Restoration scholars suggest causal mechanisms present in restoration practice which may explain why it is so conducive to enabling connection to nature. This research used participatory observation and in-depth interviewing to examine these largely untested ideas and gives insight into the casual mechanisms they present. Focusing on one case of ecological restoration in the Highlands of Scotland, the study found that exertion and achievement gained through restoration work created positive affect which people associated with their experience of nature, that laboring in nature created belonging and ownership, and that physical immersion enabled intimacy with nature. It found that learning about the legacies of human agency on landscape reduced reification and that the wider narrative of restoration gave people both a sense of being part of the unfolding history of the landscape and part of a redemptive future. It also found that focused attention created vivid memories and elevated the significance of the experience of being in nature and ritual created remarkable, memorable events. This study adds to previous work, finding that the emotional labor of leaders, the use of educational techniques, and the kinds of tasks in which participants engage are important in creating particular ideas of the relationship between humans and nature.

Key words: connection, education, emotional labor, nature, nature connectedness, Scotland

Implications for Practice

- Participatory ("hands-on") ecological restoration offers an opportunity to foster a sense of connection to nature among those who take part.
- Restoration managers may be able to make an important contribution to increasing environmental understanding by using hands-on restoration as a tool to cultivate human-nature connections.
- The details of how restoration activities and lay participants are managed are critical if restoration is to be used as a social tool to facilitate positive connected relationships with nature.

that ecological restoration can play a role in fostering relationships between humans and nature, has remained prominent (e.g. Keenleyside et al. 2012; Zylstra et al. 2014; Suding et al. 2015). In particular, the involvement of lay people in "hands-on restoration" is thought to hold potential for enabling participants to connect to and value nature (Grese et al. 2000; Shandas & Messer 2008; Schild 2018), with restoration efforts themselves becoming more "socially robust" due to the acknowledgment of social values (Light 2000; Clewell & Aronson 2006; Gross 2006). Indeed, the second edition of the International Standards for the Practice of Ecological Restoration suggests that when ecological restoration can build healthier relationships between humans and nature (Gann et al. 2019, p. S3) and that participation in restoration projects can have a transformative effect on the people involved, building connection with ecosystems (Gann et al. 2019, p. S8).

Introduction

Today ecological restoration is practiced across the world, but an arboretum established at the University of Wisconsin-Madison in the 1930s is generally regarded as the first example of intentional ecological restoration practice, and the beginning of restoration ecology as a field of study (Murphy & Allison 2017). During his speech at the opening of the arboretum in 1934, Aldo Leopold explicitly declared restoration a social as well as ecological project that could enable humans to live harmoniously with nature (Greenwood 2017). This argument,

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However, there is a lack of empirical evidence which supports the claim that ecological restoration can foster a connection to nature. Two books, “The Sunflower Forest” (Jordan 2003) and “Nature by Design” (Higgs 2003), present causal mechanisms present in restoration practice that may explain why it can foster human-nature relationships, but their ideas remain largely untested. This research aims to address this deficit, beginning by detailing the aspects of hands-on restoration that are thought to be instrumental in stimulating a connection with nature.

Physical Participation in Nature

Physical “doing” is the core of hands-on restoration. In restoration scholarship, this is variously framed as “direct participation” (Suding et al. 2015, p. 639), “hands-on participation” (Keenleyside et al. 2012, p. 11) and “participation in ecology” (Jordan 2003, p. 91) and is thought to be the critical characteristic of restoration that gives it power to foster connectedness to nature. Higgs sees physical participation as the primary catalyst for participants’ re-evaluation of their place in nature. Jordan concurs, saying a participant can be “liberated from the role of mere observer to become a participant in ecology” (Jordan 2003, p. 91). However, the physicality of the work alone is not seen as the only way that restoration stimulates a connection to nature.

The Intentions of Restoration

Jordan (2003) argues that the intention of restoration, the possibility of restoring what has been destroyed, carries particular significance. As Jordan sees it, the goal of restoring a self-sustaining ecosystem is “ecologically untenable” (85) thus, aiming to restore an ecosystem forces a reckoning for lay participants: in which the limitations of the practice of restoration provoke them to deeply observe non-human nature and recognize humanity’s place within nature.

Focus and Ritual

Jordan (2003) and Higgs (2003) suggest the ability of restoration to produce connection to nature is amplified when the practice is carried out in ways that incorporate focused attention on the tasks at hand. Drawing upon Borgman’s (1984) “Device Paradigm,” Higgs calls this “focal restoration”: an attentive, skilled, physical practice. Both Jordan and Higgs also view ritual as important in prompting connection to nature. Jordan sees ritual as enabling of creativity and allowing the restoration community to “examine, critique and change the deepest structures of its world view and system of values and relationships.” (Jordan 2003, p. 148). Similarly, Higgs sees ritual as offering a “way of examining, expressing and even changing relations between nature and culture” (2003, p. 251). One of the ritualistic acts that can be part of hands-on restoration, as Jordan sees it, is the act of “gift giving.” Jordan ties together the idea of restoration as the building of a relationship with nature with the work of anthropologist Mauss (1954), who presented a theory of the creation and maintenance of relationships via the exchange of

gifts. Jordan describes acts of restoration as the giving of gifts, symbolizing a willingness to enter a relationship with nature. The objective of this study was to examine these aspects of participation in ecological restoration that are thought to be instrumental in fostering a connection to nature. The hypothesis was that these casual mechanisms suggested by Higgs and Jordan (physical participation, the intentions of restoration, focus, and ritual) are important in enabling a connection to nature via participation in restoration.

Methods

A case study approach was used, and the choice of case was theoretically guided. The case was chosen as a “crucial case”: a crucial case “offers the circumstances which enable the analyst to reject some theoretical proposition” (Mitchell 1983, p. 197). Accordingly, the case was selected for its explanatory power rather than for its typicality, it has all the attributes necessary to provide sufficient conditions for participants to connect to nature: hands-on physical work in nature, the use of focused attention and ritual. The research took place on “conservation weeks” organized by “Trees for Life,” a small Non-Governmental Organization in the Scottish Highlands, whose mission is to: “*restore the Caledonian Forest and all its constituent species of flora and fauna to the Scottish Highlands*” (Trees for Life 2017).

The data collection involved participant observation, where a researcher lived and worked alongside eight cohorts of volunteers who were attending weeklong ecological restoration work camps where small groups of people live together in the remote Highlands to do practical restoration work. Data collection consisted of taking field notes and carrying out in-depth interviews with all participants who attended the weeks ($n = 74$). Initial interviews were carried out during the conservation week, these took between 15 and 60 minutes each. Half of the original participants were then interviewed again 8 weeks later, after they had returned home to their usual everyday lives. This interval was chosen to enable the research to examine participants’ connection to nature over time (McLeod 2003). The second round of interviews was conducted over the phone, and each took between 30 and 70 minutes. All interviews were semi-structured, using a script of questions.

Interviews were recorded and transcribed, and data were anonymized. The content was analyzed with a thematic approach using a coding procedure derived from Strauss (1987), Miles and Huberman (1994), and Coffey and Atkinson (1996). This aim of the analysis was to offer plausible accounts (Sennet 1977) of participants’ perceptions of nature. It involved ordering the data, and subsequently developing codes that were used to cut up the data into themes. The “plausible accounts” that were developed were interrogated by returning to the participants for the second round of interviews to look for any inconsistent and negative examples, this process was carried out iteratively until no new themes arose in the data. The research was overseen by Cardiff University School of Social Sciences Research Ethics Committee (reference: SREC/1583). As with all research methods this approach has its limitations. One case

of forest restoration in Scotland which utilized short-term volunteer involvement was examined, and the findings are embedded in this ecological, social, and cultural circumstance. This, together with the absence of a control group, means the results cannot simply be generalized to other cases. In addition, all the participants had freely volunteered for environmental work and thus likely had pro-environmental views, which should be considered a confounding factor, therefore, research which specifically examines the motivations and outcomes of volunteers in ecological restoration would complement this research. Nevertheless, this research offers an indication of factors that enables connection to nature in ecological restoration for those considering similar programs.

Results

Most of the participants were from Scotland or England, with six from other European countries. They were aged 19–78. Two thirds were between 19 and 39, with the remaining third over 40. Two thirds were male and one third female. 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. Participants were almost universally well-educated, though not necessarily about ecology. Those who were working in low-skill or poorly paid jobs were usually well-educated young people. This has been found to be the case in other studies of environmental volunteering in the UK (Campbell & Smith 2005). Approximately half of the participants came to TtL never having experienced any feelings of connection to nature, for many of them the experience on conservation weeks was the first time they had felt the intimacy of observing and being immersed in nature.

Physical Engagement in Nature

The challenge of the hard physical work of restoration was a key factor in rendering it significant and meaningful for people:

“You feel a sense of achievement, accomplishment and physical exertion...Compared to sitting in an office for seven hours a day and staring at a computer screen, I mean Christ, it’s been fantastic, it makes you feel alive...” (D2–3).

There was a sense of ownership that was created when participants intentionally intervened in the ecosystem:

“Planting a tree, it feels as though there is some sort of ownership that takes place. There is real connection that takes place between you and that tree...it’s like I’m a father figure... I’ve just put this baby in the ground, and you want see that doing well...” (GA1).

Both physical proximity to the natural world and observation of biotic and abiotic non-human phenomena gave people an intimacy with other species and landscapes:

“...when you’re on a site a full five, six, seven days like we are here, and you’re crawling all over it you actually learn almost every square inch. It hits home...” (T5).

The Intentions of Restoration

Participants were often unaware of the environmental history of the Highlands, many described how they realized that the Highlands were a product of human deforestation:

“...and then I realised the Highlands didn’t have the trees. And then it all dawned on me why it was so quiet walking up the hills in Scotland, that there were no animals and then I thought, aha, okay.” (FD2).

Working toward a particular vision of restoration often enabled people to feel they were playing “*small role in a much bigger picture*” (FT1): that they were part of nature.

Focus and Ritual

Leaders encouraged participants to use the work as an opportunity to become aware of their surroundings and reflect upon the work and its purpose. This was often seen by participants as something which enabled a connection:

“...because just to have that time to reflect...have this kind of mindfulness to it...I think ...it makes you feel more connected...” (C2-5).

Ritual was both communal and solitary: volunteers would be asked to observe their inner thoughts and feelings and their surroundings.

“...we went and sat down...by ourselves for about 10 minutes...basically a meditation but not really. Just trying to use our senses, just feel... they just encouraged you to, like, listen and feel... understand your emotions, why you’re doing it and... we did...that kind of thing quite a few times throughout the week and it was nice.” (C5).

For most first time participants the ritual-like aspect of the week was unexpected and novel, very often it was the most affecting aspect of it. The great majority of participants enjoyed these opportunities:

“I didn’t expect any of... the hippy stuff basically, I had no idea that that was at all part of it. And I really like it because, I mean I am a scientific sceptic at heart, but I think that been... surprisingly positive.” (D2-3).

but a small minority did not:

“The aspect of it ...that I found nearly disturbing was our falling into a circle and holding hands and so on... that’s not my scene, that’s not my scene at all.” (F GA9).

New Findings

Our research found additional aspects of hands-on restoration that played a role in fostering a connection to nature, which were not foreshadowed by Higgs (2003) or Jordan (2003). Firstly, leaders need to employ considerable “emotional labor” (Hochschild 1983) in running the conservation weeks:

“...it’s trying to read people on the Saturday and by the end of the Sunday trying to get a really good scope and reading people’s psyche, what might people think of a situation, how might they react? Try to gauge the group the whole time, there’s a lot of psychology in involved...” (T9F).

Secondly, the role of education was important in inducing a connection to nature, here a group leader explains his thinking about transmitting information to volunteers:

“...the information is quite a lot and the way you put it across, trying not to say it with the figures: ... make it a story kind of thing, a narrative or more of a full picture rather than just that’s a tree, that’s the height, that’s the leaves... So you’re trying to make it a more fluid thing rather than a bullet point thing... More accessible and more memorable.” (C3F).

In this case, the role of the group leader is not to be the expert, but to facilitate learning within the group, the knowledge does not flow from leader to volunteers in a linear way, often leaders learn from volunteers. Here a leader explains how she encourages volunteers to offer their knowledge to the group:

“...we’ve got Stephen on this week who is a botanist... I have been encouraging him to share his knowledge, he did a little grasses talk for us one lunchtime...” (C2-2F).

Finally, tasks varied in how much they enabled participants to feel connected to nature. Here a participant reflects on planting native trees and how they tie the planter’s personal biography to the future of the land:

“...it’s constructive, positive, I can’t think of anything more worthwhile to do in all honesty for the environment. And I guess it leaves a lasting legacy...” (T8).

Another reflects on removing *Rhododendron ponticum*, which reinforces powerlessness and loss of hope:

“I quite like the non-native removal, but it’s a bit soul destroying isn’t it? ... just hacking down rhododendrons knowing full well it’s going to grow back...” (FC6).

Discussion

Physical Engagement in Nature

This research adds definition to the claim that hands-on restoration fosters connectedness to nature, suggesting three aspects of physical participation which are of particular importance in creating relationships with nature. Firstly, exertion and achievement gained through the work of restoration create positive effect which people then associate with their experience of nature. The physical demands of the work created feelings of achievement in participants which imbued the process with significance. Secondly, that laboring in nature can create a sense of simultaneously belonging to, and feeling ownership of, nature. Participants felt a connection to nature through contributing their labor to the ecosystem, which enabled them to feel as though they had earned their place in nature: that they belonged. Finally, corporeal immersion in non-human nature created an intimacy with nature. To participate in restoration work volunteers needed to meticulously examine their surroundings, they carried out surveys for red squirrels, closely observing the ground while searching for evidence that they may live in the valley. They had to examine different types of soil to find appropriate places to plant their trees, and learned without being told how different materials such as clay, mineral soil and peat yielded under their spades, and that moss was easier to cut through than grass or reeds, which were easier than heather. Learning how to do restoration tasks required touch and observation, there was an intimate materiality to the work which meant gave volunteers a sensory and embodied experience of nature.

The Intentions of Restoration

Physical “doing” alone did not bring people into a connection with nature. Jordan (2003) makes strong claims that restoration is uniquely positioned as a practice to inculcate connection with nature because of its narrative of repairing past damage. This research found that this claim was justified, and that the strong focus on environmental history coupled with a redemptive vision of the future enabled participants to see themselves as a small part of an unfolding ecological story, with which they were able to feel connected. Leopold said that “*one of the penalties of an ecological education is that one lives alone in a world of wounds*” (Leopold 1966, p. 183), meaning that restorationists learn to see the anthropogenic damage that has been done to the landscape that many people do not have the knowledge to recognize. Restoration reduces the reification of landscapes, enabling participants to see the role of human action in landscapes previously understood as “natural.” This newfound ability to see what would have gone unnoticed exemplifies how relationships

between participants and their surroundings could change through participation in restoration. Participants were not only learning about environmental history and unpicking some of their assumptions about the landscape, they were also working explicitly toward a vision of the future landscape, which enabled them to place themselves within a wider temporal and ecological context.

Focus and Ritual

In agreement with other recent findings (Flowers et al. 2015; Barbaro & Pickett 2016; Wang et al. 2016), our findings suggest that attention to one's surroundings is important in encouraging connection to nature. The research found that when mindful attention to tasks was complemented with formal nature-focused meditation and ritual activities, it had the effect of making the experience of being in nature intense and remarkable for participants. Furthermore, the use of mindfulness, meditation and ritual helped create vivid memories and elevate the significance of the experience of being in nature. There were multiple ways that leaders directed the attention of the volunteers: discussing nature, the surroundings, and the meaning of the practice of restoration were all important. Although the bulk of a day may have consisted of walking to a site and planting trees, with only 10 minutes standing silently watching leaves fall from the trees, it would often be that 10 minutes that participants talked about in interviews. As one group leader said, she looked for appropriate ways to add some "specialness" to the work. Together they may hold hands in a circle (while imagining the forest past and future, or listening to the wind), or they may stand and watch leaves falling or participate in planting trees for particular people. These rituals had the effect of directing participants' attention to the present: disrupting the working day and reminding them again of where they were and why they were doing the work. An important caveat to these findings is that meditation and ritual depended upon the tacit consent of participants and some were uncomfortable with activities which broke from social norms. Although Jordan is a strong advocate for bringing ritual into restoration work, the ambivalence found in this study is quite typical of that found in Western Canada by Meekison and Higgs (1998), and by Jordan himself in Chicago (Jordan 2003:193).

New Findings

Our research overall is supportive of the claims of Jordan and Higgs—and adds to their model. The following factors are also important in fostering a connection to nature via ecological restoration.

Emotional Labor. Leaders' emotional labor was critical in creating receptiveness and wellbeing in participants. Leaders "read" the groups from the moment they meet them, hoping to predict how responsive they may be to the idea of connecting to nature. For participants to be amenable to nature connection they needed to feel relaxed and comfortable within a group of

people who were likely complete strangers: this ease is what the leaders facilitate.

Education. Environmental education techniques were important in creating wonder and curiosity about nature. Although they both value understanding and knowledge, suggesting that to restore something is to reflect deeply upon it, neither Higgs (2003) nor Jordan (2003) devotes significant attention to the role of knowledge in creating a relationship with nature. Indeed, in the connection to nature literature, there is a general agreement that education alone is limited in the impacts it has on human relationships with nature (e.g. Ernst & Theimer 2011; Schultz 2011; Bruni et al. 2017). Thus, prior to the fieldwork, education was not considered likely to be important in hands-on restoration. However, from the data collected it was clear that education, as it was facilitated in this case, was important in shaping the ideas that participants absorbed about nature. Perhaps it is important *how* the educational aspects of restoration work are integrated with the physical practice. In this case, the educational aspect of the weeks was subtle, peer led and emphasized curiosity over the status of knowledge or learners. There were three main characteristics of education that were pivotal in enabling participants to develop a connection to nature: ecology was spoken about as the connections between things, there was particular attention given to wonder and awe in the experience of observing nature, and there was an ethos of knowledge sharing, whereby groups were encouraged to pool knowledge and observations in order to learn together.

Connectedness Is Task Specific. Feelings of connection to nature varied according to the tasks in which participants were engaged. It was apparent that some of the activities that constitute restoration were more effective in stimulating a connection to nature than others. In particular, the act of planting trees was powerful. Tree planting integrated easily into a redemptive narrative (whereas this was not the case with more "destructive" practices such as removing non-native species). The long lifespan of trees relative to humans helped to reinforce the wider temporal context of restoration and enabled participants to place themselves within that story. The act of tree planting was also one of giving and was easily embedded into a discourse which emphasized the contribution participants could make toward nature. This suggests that some kinds of restoration may be especially conducive to enabling a sense of connection to nature.

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