

Foraging for identity: the relationships between landscape activities and landscape identity after catastrophic landscape change

Andrew Butler^a, Igor Knez^b, Ann Åkerskog^c, Ingrid Sarlöv Herlin^d, Åsa Ode Sang^d and Elin Ångman^e

^aFaculty of Landscape and Society, Norwegian University of Life Sciences, Ås, Norway; ^bDepartment of Social Work and Psychology, University of Gävle, Gävle, Sweden; ^cField Forest Research Institute, Uppsala; ^dInstitutionen för landskapsarkitektur, planering och förvaltning, Swedish University of Agricultural Sciences, Alnarp; ^eInstitutionen för Stad och Land, Swedish University of Agricultural Science, Uppsala

ABSTRACT

In this article, we deal with landscape activities in relation to changing landscape identity after a major wildfire in Sweden in 2014. The aim was to investigate the relationships between 22 landscape activities (before the fire) and 2 components (emotion and cognition) of landscape identity (before and after the fire). A total of 656 respondents living nearby the fire area participated in this study. Before the fire, a positive association was found between the activities of *enjoying nature* and *foraging*, and both components of landscape identity. This suggests that the more participants enjoyed nature and picked berries and mushrooms, the stronger their attachment to the landscape (emotion), and the more they remembered and reasoned about the landscape (cognition). Post fire, these relationships were found only between the two components of landscape identity and *foraging*. This implies a significant role of this type of activity for keeping 'alive' landscape identity.

KEYWORDS

Landscape change; natural disaster; forest fire; landscape activity; landscape identity

Introduction

Since the middle of the 20th century, there has been a dramatic increase in natural disasters¹ globally (Figure 1). Extreme climate-related events, such as storms, floods, drought and forest fires, represent more than 80% of all disasters over the past decade (Guha-Sapir & Hoyois, 2015). Such events create dramatic and catastrophic change. These changes affect not only the economic and ecology functions of the landscape, but also how it is experienced and perceived; individuals' and communities' relationship to their landscape is drastically affected. The importance of recovery of individuals and communities, and their relationship to their surroundings after disastrous events is widely recognised yet remains understudied (Eisenman, Mccaffrey, Donatello, & Marshal, 2015; Rumbach, Makarewicz, & Németh, 2016).

A central aspect of how relationships to the landscape develop is through engagement with and activities in the landscape (Ingold, 2011). Yet what happens when familiar places for landscape-based activities are catastrophically altered and when engagement and activities no longer fit the landscape? In this paper, we address activities that contribute to identity and how engagement in certain activities affects individuals' connections with the landscape after

CONTACT Andrew Butler ✉ andrew.butler@slu.se 📧 Institutionen för Stad och Land, Swedish University of Agricultural Science, Uppsala

© 2019 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group. This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

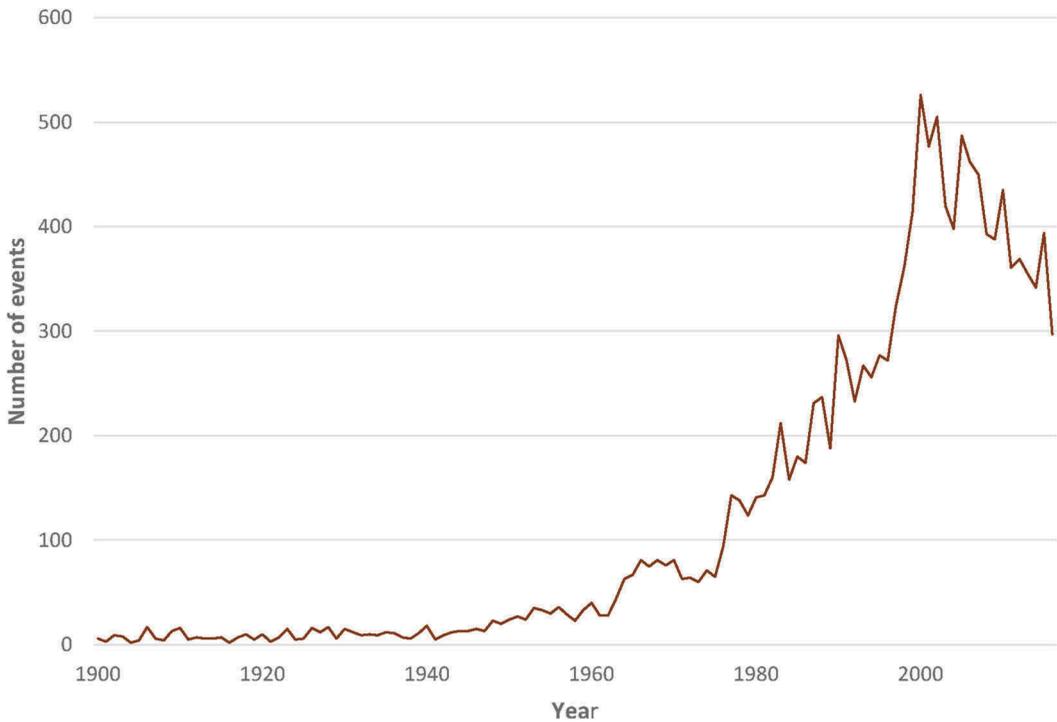


Figure 1. Disaster trend, showing the increase in occurrences of natural disasters (modified from Centre for Research on the Epidemiology of Disasters, (2016)).

dramatic change. More specifically, we grapple with how a forest fire in Sweden affected the activities of those who used this area as their everyday landscape, and the relevance of these activities for their well-being.

The paper begins by highlighting relevant literature relating to calamitous landscape change, followed by an outline of how we conceptualise landscape identity in this study. We then underscore the relevance of activities for developing connections to landscape. This is followed by a description of the case and its context. We then provide a description of the quantitative approach applied in this study and present our results. Finally we discuss the relevance of this study for understanding landscape identity and post-fire recovery.

Calamitous change

While there are extensive studies on many of the dynamics aspects of landscape transformation (see Plieninger et al, 2016), the spontaneous nature of calamitous change makes them less accessible to study and consequently less well understood. Within disaster research the non-economic social impact of disasters are the least studied aspects (Toman, Stidham, Mccaffrey, & Shindler, 2013). In the case of forest fires, post-event literature focuses primarily on economic consequence and the effect on habitats (Gill, 2005), studies which address social aspects, tending to deal with economic practicalities and tangible loss (Kulig, Townsend, Edge, Reimer, & Lightfoot, 2013). Yet there are studies that have broken ground relating to society and place in the aftermath of disasters. It is the discussions developed through such works that our present study engages. Numerous researchers have observed that such events have a negative impact on place identity leading to emotions of grief, and the loss of sense of place among locals (Eisenman et al., 2015; Gordon, Gruver, Flint, & Luloff, 2013; Hamin & Ryan, 2008; Oliver-Smith, 1996). This has been referred to as Solastalgia; when the landscape is stripped of

its capacity to provide solace (Albrecht et al., 2007; Eisenman et al., 2015). Knez et al. (2018) reveal that after a forest fire individuals lose emotional bonds to the landscape. However, memories of the landscape remained intact, as do aspects of positive well-being that individuals associated with the landscape. Ruiz and Hernández (2014) argue that psychological change after catastrophic landscape transformation (in their case volcanic eruption) is in part influenced by loss of control over space. Loss of control in turn creates disruption of day-to-day routines (Cox & Perry, 2011). Butler et al. (2017) recognise this disruption in their assumption that a new geography, created after a catastrophic event, severely impacts on landscape practices. This in turn influences the individual and collective identities relating to the landscape.

Brown and Perkins (1992) study of disruption to place attachment recognises three chronological stages, *stability-change-progression*. These stages represent losing attachment and then coping through creation of new identities. Butler et al. (2017) apply this model for understanding landscape identity after a forest fire. They define the stages as pre-disruption of landscape identity; disruption of landscape identity; and post-disruption of landscape identity. The first stage, *pre-disruption*, entails the evolution and development of landscape identity as individuals and groups build connection to the landscape. This stage comprises of the development of memories, collective and personal experiences, events and the development of traditions. The second stage, *disruption of landscape identity*, involves a breakdown of human-landscape relations. Relations to the landscape lose their familiarity as the physicality and the perceptions of the landscape are dramatically altered. The third stage, *post-disruption*, involves the processes of coping with the loss and re-establishing personal and collective landscape identifications. If issues such as magnitude of the loss, ability of the lost landscape are recognised it can provide new positive identification, and develop community consensus (Butler et al., 2017).

Both Cox and Perry (2011) and Silver and Grek-Martin (2015) argue that disaster recovery (the disruption and post-disruption stage) necessitates a process of disorientation and reorientation. Through these iterative events, individuals and communities come to understand the changes to their lives and surroundings, and learn to cope with change. In this process, place becomes an important aspect, acting as an orientation frame for recovery, providing psychological and structural foundation for understanding change.

Landscape identity

Identity provides a sense of belonging, creating a rhetoric through which practices and relations can be legitimised (Dixon & Durrheim, 2000). It is developed through everyday practices, and becomes central to everyday life (Relph, 1976). The creation of identity is a constant process of identification, a process which develops through interactions with other individuals and our surroundings (Hague & Jenkins, 2005; Paasi, 2002; Twigger-Ross, Bonaiuto, & Breakwell, 2003). Through this process we undergo continuous rewriting of self and the social collective (Paasi, 2002).

Identity is recognised as being derived from experience, reflection on those experiences and the actions undertaken as a consequence of them (Gecas & Burke, 1995). Yet, while experiences have both social and geographical context studies into identity have tended to favour history over geography. The physicality of the environment in which identity is formed has traditionally been overlooked (Dixon & Durrheim, 2000). However, the fact that relationships and how we relate to others are geographically located means that multiple aspects of identity have place-related implications (Twigger-Ross & Uzzell, 1996). Who we are tends to relate to where we are (Dixon & Durrheim, 2000). How people perceive their surroundings influences where they choose to live, where they choose to inhabit and the activities they choose to undertake (Scott, 2002).

Stobbelaar and Pedroli have defined the concept of landscape identity as '...the unique psycho-sociological perception of a place defined in a spatial-cultural space' (Stobbelaar & Pedroli, 2011). This recognises that landscape identity builds on both individual and group understanding of

landscape as both a physical and an existential entity. In this role, landscape has a central function developing collective and individual identities in response to the human need to belong (Egoz, 2012). As such, landscape identity is a dynamic entity, built on the ever-changing interplay between practices, the physicality, and the feeling and memories attached to the landscape (Butler et al., 2017; Loupa Ramos, Bernardo, Ribeiro, & Van Eetvelde, 2016).

According to Casey (2000, p. 184) physical places serve to '*situate* one's memorial life', meaning that certain sites can remind us of important experiences of our lives (Knez, 2006; Wang, 2008; Wheeler, 2014). Landscapes can act as autobiographical memory aids in self-formation, through which we uphold and consolidate our identifications (Knez, 2005). This means that there is a role for the cognitive processes of mental temporality, coherence, correspondence, reflection and agency, as well as the emotional process of attachment/closeness/belonging in place-related identification (Conway, Singer, & Tagini, 2004; James, 1890/1950; Knez, 2014; Tulving, 2002). This accounts for the phenomenon of place/landscape-related self.

In the words of Knez (2014, p. 186): '*...physical places and time position -anchor- one's reminiscence by forming psychological person-place ties, emotional and cognitive bonds that conduct the psychological agent towards physical places and time as the organising formats for its personal memory... A place-related self is, thus, assumed to be a substructure of the self, emerging when we cogitate about our lives, when our self-representations are online, triggering streams of noesis-ways of knowing about ourselves*'. This suggests that we not only remember, reason and think about landscapes in our lives, but we also emotionally bond with these landscapes. In other words: 'Natural or semi-natural features of the environment are often associated with the identity of an individual, a community, or a society. They provide experiences shared across generations, as well as settings for communal interactions important to cultural ties' (Daniel et al., 2012, p. 8814). In line with this, Knez and Eliasson (2017) revealed that both personal and collective landscape identities are related to well-being (in a study of inhabitants near mountain landscapes).

Activities

In the European Landscape Convention, landscape is defined as 'an area as perceived by people...' (Council of Europe, 2000). Perceptions of landscape are reliant on engagement and activities in the landscape, which become central to how we understand a landscape (Scott, Carter, Brown, & White, 2009). Perception through bodily experience is more closely linked to recognition of landscape as an area of activity, rather than the traditional Anglo-Saxon understanding as scenery (Eiter, 2010). Landscape represents the surrounding to life and our engagement with those surroundings; how we meet the environment. Individuals and society develop multiple connections to the landscape which acts as a source of physical, mental and social well-being (Abraham, Sommerhalder, & Abel, 2010).

Activities facilitate connection with landscapes. The relevance of this has been studied through various activities including rock climbing (Ness, 2011), running and jogging (Lorimer, 2012; Nettleton, 2015) walking (Wylie, 2002), mountain biking and land management (Scott et al., 2009). Engagement in activities in the landscape contribute to what Sarah Nettleton refers to as *existential capital* (Nettleton, 2015), and is fundamental in the formation of landscape identities (Butler et al., 2017). Landscape becomes tied up with the activities we engage with; the practices which we undertake and the customs these develop (Eiter, 2010). Consequently, activities undertaken in the landscape become documented as customs (informal) and laws (formal) on the physical landscape, and ultimately becomes a generator of landscape (Eiter, 2010; Olwig, 2002).

Scott et al. (2009) in a study to elicit the perceptions evoked through different landscape activities revealed three dimensions of engagement with the landscape. 1) Experiences are multi-dimensional and not directly related to the landscape setting, yet are important to landscape experience (see also Qviström, 2016) 2) Experiences with landscape bring about multiple identities, reflecting as much on 'who' we are as on the landscape in which we engage in. Landscape experiences are interrupted and affected by the multiple identities, interests and perspectives

that people bring to a particular experience as recognised by Castells (1997) 3) Experiences with landscape is secondary to primary activities for which landscape is the setting.

The case

In order to grapple with issues of landscape identity and activity in relation to catastrophic change we turn to the inhabitants of an area in Sweden affected by forest fire.

Swedish context

In Sweden, the relationship to the landscape and activity is inextricably tied up with the concept of 'allmansrätten' (literally 'all man's right', yet commonly translated as 'The Right of Common Access'—see Sandell and Fredman (2010)). It permits access to most rural land, providing the right to forage for wild berries and mushrooms; gatherer wild flowers and herbs; and camp and undertake recreational activities (Sandell & Svenning, 2011). The laws and customs surrounding Allmansrätten have developed a certain landscape perspective—a perspective accepting of multiple uses built on mutual respect between different users. Outdoor activity represents one of many justified uses of the landscape (Sandell & Svenning, 2011). The unwritten customs developed through Allmansrätten inform the possibilities and limitations of land use influencing the activities and the identities relating to those activities (Olwig, 2005).

Forest fire area in Västmanland

On 31 July 2014, a small forest fire was inadvertently started during forestry work in the county of Västmanland, Sweden (59.902°N, 16.163°E) (see Figure 2). A variety of management and environmental factors meant that the fire quickly spread. By 5 August, the fire had covered an area of approximately 14,000 hectares (equivalent to almost 20 000 football pitches), affecting four different municipalities. The fire claimed 1 life, razed over 20 houses, forced approximately 1000 people to be evacuated and required a further 6000 people to be placed on stand-by for urgent evacuation. Twelve days after the initial event, on 11 August, the fire was finally considered to be under control (Gustavsson, 2014).

The landscape affected by the fire was contained within a landscape type categorised as a 'water rich forest landscape', predominantly covered by production forest of spruce and pine (Figure 3). However, the presence of water bodies through the area created diverse pockets of vegetation. This culminated in a relatively diverse landscape with different forest types, from single species coniferous plantations to deciduous wetland forest, marshes, lakes and the occasional area of open ground. The area was heavily influenced by the modern intensive forestry production and historic charcoal production that previously dominated this landscape. The area was sparsely populated, with settlements located around the outskirts of what is now the fire area with only summerhouses and auxiliary buildings for forestry industries in the interior. Due to the clear spring lakes and extensive forest coverage, this area was recognised as being popular for recreation, for fishing, swimming and foraging for mushrooms and berries (Onsten-Molander, 2016).

After a forest fire, a new geography has been created. Many elements and aesthetic qualities around which the collective identity of the landscape was formed disappear. Prior to the fire the land cover of production spruce forest and wetland vegetation were seen as the dominant characteristic informing the collective identity of this landscape. Now the collective understanding relates to the impact of the fire and the aesthetics this produces, with little attention paid to a history before the fire. The new geography is brought about through the creation of a new boundary (the extent of the fire) and at the same time, the destruction of elements. It has altered perceived distances and spatiality. For individuals the routes, perceived boundaries and landmarks

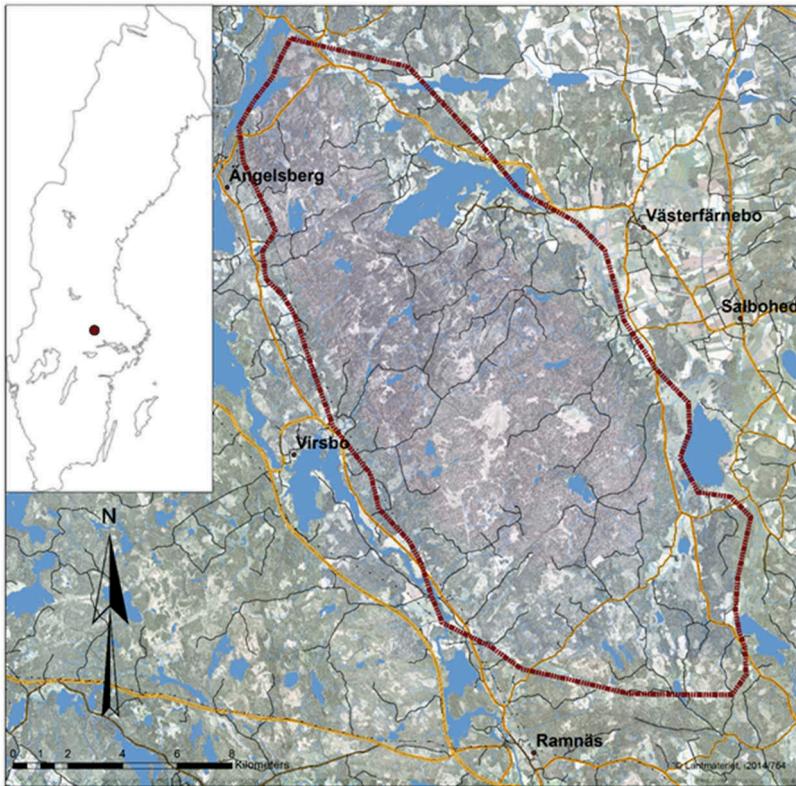


Figure 2. Map of location and map of area.

used for understanding this landscape have changed, altering the way individuals negotiate and engage with the area. The individual practices and customs which once defined the use of the landscape no longer fit (Butler et al., 2017).

Method

Sample

A total of 2264 households living nearby the forest fire area were sent a survey, approximately a year after the fire, randomly identified from a register of the population. The survey comprised multiple sections including questions about landscape-related activities, experiences, perceptions and attitudes before and after the fire. After 3443 reminder calls, 656 (29%) responses returned; of these, 48.4% were women and 51.6% men, distributed across seven age groups of 18–25 (3%), 26–35 (5.6%), 36–45 (10.2%), 46–55 (15%), 56–65 (26.4%), 66–75 (28.9%) and 76–85 (10.9%). It is the data on landscape-related activities and identity before and after the fire that is the focus of this paper.

Measures

Landscape activity

Participants were asked to estimate the *frequency* (how many times a year) they undertook each of 22 landscape activities, before the fire (see Figure 4). Respondents were also asked to estimate how *important* each activity was for themselves, on a 7-point scale ranging from 1, not



Figure 3. Character of the forest before the fire (a) and after the fire (b).

at all, little; to 7, very much (see [Figure 5](#)). *Note*: we could not ask about the landscape-related activities after the fire because access to the area was restricted during the period of this survey, approximately 1 year after the fire.

Landscape identity

This measure involves an autobiographical emotional and a cognitive component comprising 10 statements (Knez, 2014). *Emotion component* (processes of attachment/closeness/belonging): 'I know the place very well'; 'I miss it when I'm not there'; 'I have strong ties to the place'; 'I am proud of the place'; 'The place is a part of me'. *Cognition component* (processes of coherence, correspondence, mental temporality, reflection and agency): 'I have had a personal contact with this place over a long period'; 'There is a link between the place and my current life'; 'I can travel back and forth in time mentally to this place when I think about it'; 'I can reflect on the memories attached to this place'; 'These thoughts about the

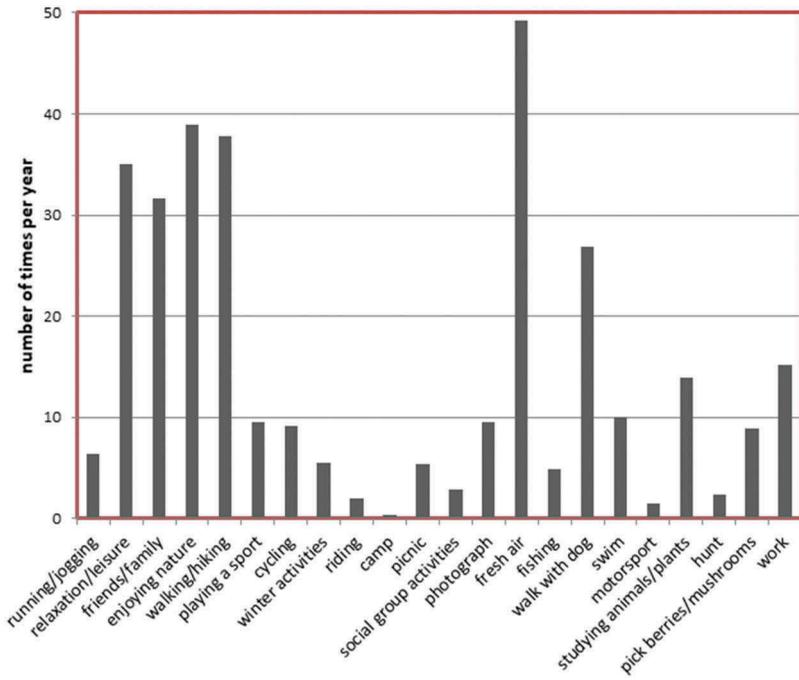


Figure 4. Frequency (number of times per year) of 22 types of landscape activities.

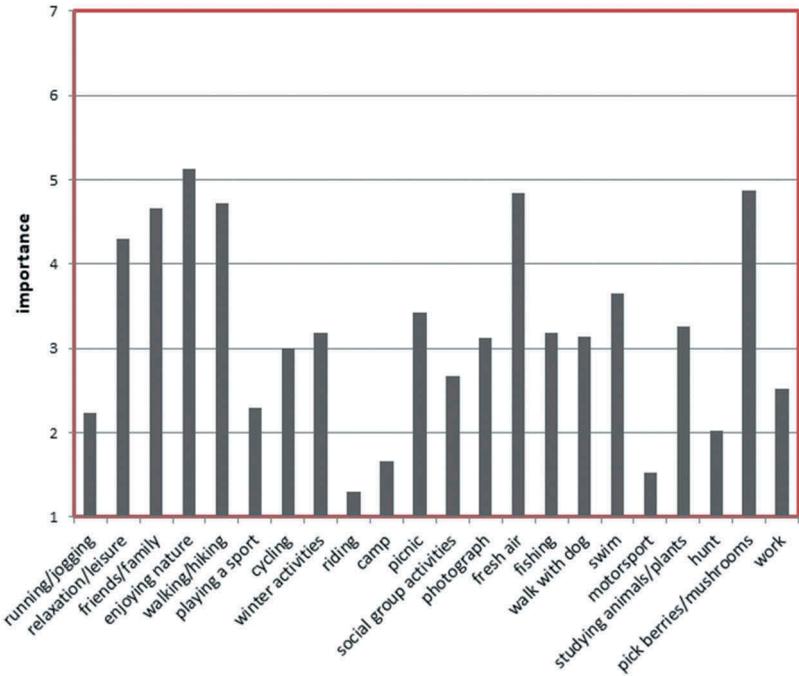


Figure 5. Mean importance of 22 types of landscape activities.

place are part of me'. Participants were asked to respond to these statements on a 7-point scale ranging from 1 (completely disagree) to 7 (completely agree).

Design and analyses

Regression analyses were performed for the six most frequent and important landscape activities (predictor variables) and each one of the emotion and cognition components of landscape identity (criterion variables) before and after the fire. The software IBM SPSS Statistics 22 was used for statistical computations.

Results

Before reporting the regression analyses, we first present the descriptive statistics for the importance and frequency of landscape activity (see [Figures 4 and 5](#)).

Relations between landscape activity and identity

Out of 22 landscape activities, respondents estimated the following six activities as the most important: enjoying nature ($M = 5.13$, $SD = 2.05$); forage for berries and mushrooms ($M = 4.87$, $SD = 2.18$); getting some fresh air ($M = 4.84$, $SD = 2.33$); walking/hiking ($M = 4.72$, $SD = 2.2$); being with friends and family ($M = 4.66$, $SD = 2.25$); and relaxation and leisure ($M = 4.3$, $SD = 2.26$). These activities were also estimated as the most frequent ones; apart from the activity foraging for berries and mushrooms which is seasonal ($M = 8.9$ per year, $SD = 16.18$): getting fresh air ($M = 49.26$ per year, $SD = 132.31$); enjoying nature ($M = 38.86$ per year, $SD = 89.09$); walking/hiking ($M = 37.73$ per year, $SD = 94.67$); relaxation and leisure ($M = 35.06$ per year, $SD = 113.24$); and being with friends and family ($M = 31.62$ per year, $SD = 120.38$). Accordingly, we used the landscape activities of enjoying nature, foraging for berries and mushrooms, getting some fresh air, walking/hiking, being with friends and family, and relaxation and leisure as the six predictors in the regression analyses below.

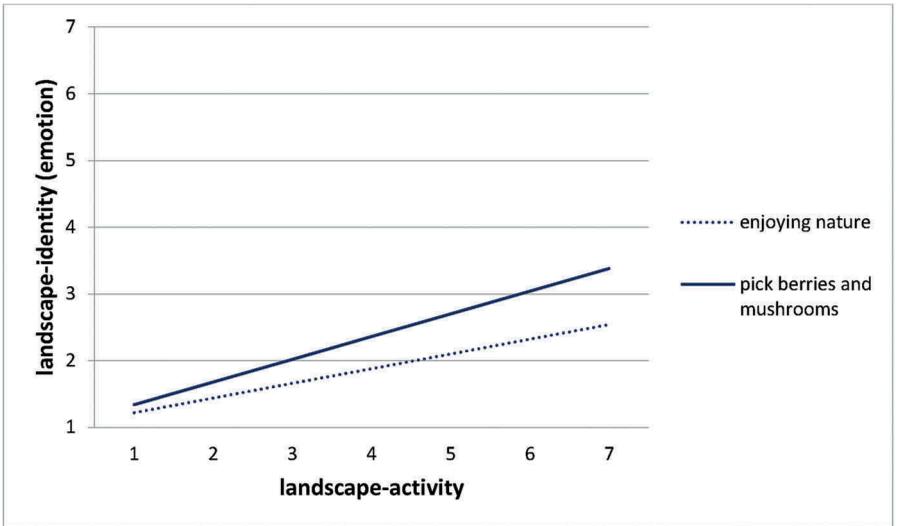
Before the fire

As can be seen in [Figure 6](#), a significant positive link is evident between the landscape activities of enjoying nature and foraging for berries and mushrooms, and the emotion component of landscape identity. Accordingly, the more frequently participants enjoyed nature and foraging for berries and mushrooms, the stronger their emotional bond, attachment/belonging/closeness, to the landscape was evolved.

A similar result was obtained for the cognition component of landscape identity; the more frequently participants enjoyed nature and foraging for berries and mushrooms, the stronger their cognitive bond (remembering, reasoning and thinking about the landscape) to the landscape ([Figure 7](#)).

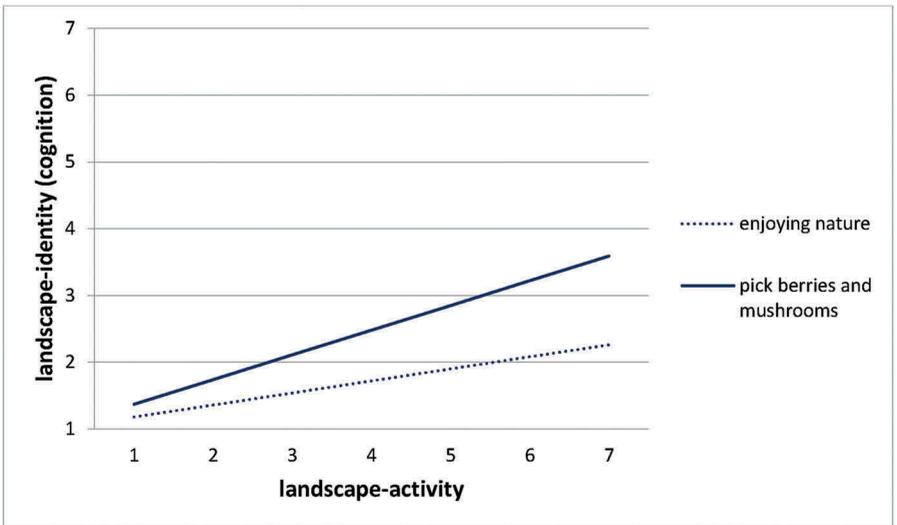
After the fire

As can be seen in [Figure 8](#), there is a significant positive link between foraging for berries and mushrooms and the emotion component of landscape identity. Accordingly, it was only this landscape activity from before the fire that correlated to positive landscape-related feelings after the fire. This implies a significant role of foraging for berries and mushrooms in keeping 'alive' the positive feelings of landscape, despite the fact that it went up in smoke.



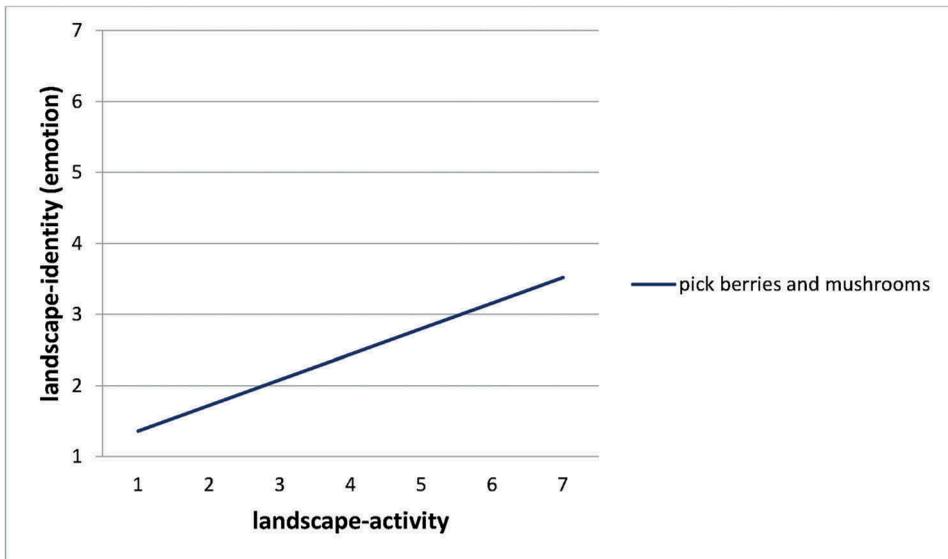
R ²	Beta	df	MS	F	Sig.
.24	.22 (<i>enjoying nature</i>)	6,217	33.65	10.89	.000
	.34 (<i>picking berries and mushrooms</i>)				

Figure 6. Mean regression line between landscape activities of enjoying nature and pick berries and mushrooms (predictors—before the fire) and emotion component of landscape identity (criterion—before the fire).



R ²	Beta	df	MS	F	Sig.
.22	.18 (<i>enjoying nature</i>)	6,217	35.8	10.1	.000
	.37 (<i>picking berries and mushrooms</i>)				

Figure 7. Mean regression line between landscape activities of enjoying nature and pick berries and mushrooms (predictors—before the fire) and cognition component of landscape identity (criterion—before the fire).



R ²	Beta	df	MS	F	Sig.
.16	.36	6,217	15.39	6.44	.000

Figure 8. Mean regression line between landscape activity of pick berries and mushrooms (predictor—before the fire) and emotion component of landscape identity (criterion—after the fire).

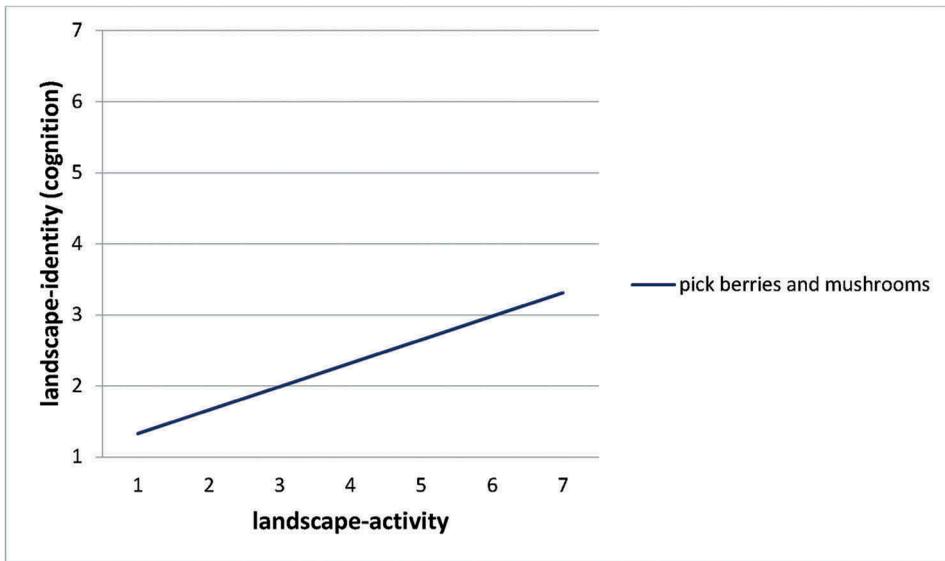
Similarly, there is a significant positive link between foraging for berries and mushrooms and the cognition component of landscape identity. Thus, a significance of this landscape activity before the fire also in remembering, reasoning, and thinking about the landscape after the fire was indicated (see Figure 9).

Discussion

The aim of this study was to investigate the relationships between 22 landscape activities (before the fire) and two components (emotion and cognition) of landscape identity (before and after the fire) related to a landscape impacted by drastic landscape change. Before the fire, a positive association was found between the landscape activities of *enjoying nature* and *foraging for berries and mushrooms* with both components of landscape identity. This suggests that the more frequently participants enjoyed nature and foraged for berries and mushrooms, the stronger attachment/closeness/belonging they evolved in relation to the landscape (emotion component), as well as recalling, reasoning and thinking more about the landscape (cognition component). After the fire, these relationships were found only between *foraging for berries and mushrooms* and the two components of landscape identity. This highlights the significance of activities for attaining well-being and developing identity through the landscape. More specifically, it raises the relevance of foraging in a Swedish context for keeping alive these positive attributes after catastrophic change.

Limitations

The results of this study show the relationship between activity before the fire and identity before and after the event. The activities most popular prior to the fire were reliant on a



R ²	Beta	df	MS	F	Sig.
.18	.33	6,219	25.2	7.88	.000

Figure 9. Mean regression line between landscape activity of pick berries and mushrooms (predictor—before the fire) and cognition component of landscape identity (criterion—after the fire).

landscape which no longer exists. There are a number of limitations to this study. It is not easy to carry out before and after studies in a conventional fashion with unpredictable events such as forest fires. In addition, while we were able to pose questions relating to activities prior to the fire, we were unable to measure activity after the event, due to the closure of the area for 9 months, and later a series of physical and psychological barriers preventing access to the fire area. While we aimed to conduct a full census of the area, we attained only a 29% response; this is in part due to the inability to define residents other than through postal areas. The area included residencies a distance away from the fire area, who did not necessarily have connection to the fire area. As the questionnaires were focused at households, it did not allow for multiple adults in single households to respond. A further issue is the impact which psychological distress could have had on who responded.

Pre-disruption of landscape identity

As stated earlier, activities facilitate connection with landscape (Lorimer, 2012; Ness, 2011; Wylie, 2002) and are fundamental in the formation of landscape identities (Butler et al., 2017). In the study we have presented, all of the activities previously undertaken in the landscape or with the landscape represent practices which helped develop landscape identity in the pre-disruption phase (Butler et al., 2017). However, drawing on the results of our study, it can be observed that not all activities are equal in developing these connections. In the case of a forest in Sweden, it was *enjoying nature* and *foraging for berries and mushrooms* that were identified as helping to develop strongest landscape-related identity.

We can at this stage postulate why foraging and enjoying nature developed stronger landscape-related identity. Both activities are embedded in the landscape; they require direct engagement with our surroundings. The objects of observation for those enjoying nature and

the fruits of foraging are part of the landscape. Consequently, those involved in foraging and enjoying nature develop a nuanced knowledge of the area and processes which create that landscape, recognising the character of a potential foraging site or habitat. Consequently, the landscape is not just a backdrop but is central to these activities.

We concur with Scott et al. (2009) that experiences with landscape bring about multiple identities based on activities engaged within the landscape. We also agree that these experiences elicit multiple identities. However, in partial contradiction to Scott's findings we would argue that certain activities *do* relate directly to the landscape setting. We would also suggest that for certain activities the landscape setting is more than just a backdrop and is in fact central for the experience of practices. In the case explored in this paper it is foraging and enjoying nature, which place landscape at the centre of the experience.

Contradictions between our study and that undertaken by Scott et al. may lie in the context and how landscape is understood and engaged with. Scott examined experiences in a British context where landscape has traditionally been considered a visual entity; an orchestrated engagement where vistas and views have been experienced via footpaths weaving through private land. The present study sits in a Swedish context, wrapped up in Allmansrätten based on unhindered engagement with the landscape, where experience trumps the visual (Butler, 2014).

Disruption of landscape identity

After the fire, the many elements in the landscape which formed emotional anchors (Casey, 2000; Knez, 2014) as well as the landmark, paths and boundaries that acted as references for negotiating the landscape have disappeared. Along with these changes, the activities connected to the landscape have either drastically altered or no longer fit within this landscape. These changes have interrupted the continuity of experience and engagement with the landscape. Such loss means that individuals need to start the process of reconnection and building an altered identity in response to the changed landscape; representing a series of reorientations to the landscape (Cox & Perry, 2011; Silver & Grek-Martin, 2015).

From our study, we can see that foraging has a positive effect on landscape relations and well-being before and after the event compared to other activities. This raises the question of what this activity provides that enjoying nature (with strong connections to the landscape prior to the fire) does not.

Though, at first it seems counter-intuitive that those with stronger connections to the landscape were less influenced by catastrophic change, it is perhaps those with more intimate knowledge and stronger connections to the landscape who understand its dynamic nature, while those less connected may have a more 'idyllic' image of the landscape of their memories, freezing the landscape at a certain 'idyllic' instance. Foraging also provides a social aspect, the landscape acting as the site where families and friends have foraged together. This combination of memories relating to an activity in a place and the socialisation which goes with this can be factors that might explain the strength of this activity in building landscape identity.

The period of post-disruption of identity is just beginning. This period involves the processes of coping with the loss and re-establishing personal and collective landscape identifications. From the results presented in this paper, we can hypothesise that those who foraged in the landscape will potentially have an easier time reconnecting with the landscape. Perhaps this is not just the effect of activity they previously undertook, but may also be tied up in the mind-set of those who engage with foraging.

Although the memories of foraging remain, the possibility to continue this activity has now gone. New activities, which provide connections to the landscape, will have to develop in order to strengthen the landscape-related identity of individuals who engage with this landscape and help redevelop the well-being that the connection with their landscape previously provided. An alternative coping strategy is for individuals to relocate the activity to another site. This can

help build connections to new landscapes, linked to memories of this transformed landscape. As Scott et al. (2009) reason, the experiences which were undertaken in the landscape can inform activities which are transferred to other locations. If individuals continue these activities they will choose places which can allow them to be who they see themselves as being (Dixon & Durrheim, 2000). Consequently places will develop where new landscapes can provide anchors through the activities undertaken.

Foraging represents what Butler et al. (2017) term a 'practice of landscape identity' and is linked to and formed by numerous other practices, which are undertaken in the landscape. While our study has highlighted the relevance of foraging, in other contexts it will be different practices which provides similar effects. It is a case of identifying what they are. In the case we present, foraging strengthens individual relationships with the landscape and as the results have highlighted undertaking such an activity can have a central role in mitigating the impact of extreme landscape change on individuals.

Relevance for landscape planners?

In Sweden the relevance of forests for everyday activities is widely recognised (Fredman, Karlsson, Romild, & Sandell, 2008). Through looking at activities in the forest landscape this study helps develop the argument for the importance of the everyday landscape as a source of identity and an enabler for individual well-being. This fits with several studies (National Trust, 2017; Swanwick, 2009).

The relevance of activities highlights the need for planners and policy-makers to be aware of the complex and elusive nature of engagement with landscape. This is not just as a constraint for development but it is also an enabler for place making. Attaining such knowledge requires approaches which engage the public in ways which go beyond simplistic surveys and consultation exercises (Scott et al., 2009).

This study also adds to a more nuanced understanding of the disaster recovery process and the ways in which planners can act in order to supported survivors through the recovery process. This requires engaging with those who inhabit(ed) the landscape. There are normative claims for involving the public affected in decision-making processes; to enhance democracy, citizenship and equality; ensure the durability and quality of decision (Reed, 2008); as well as developing a greater sense of identification with the local area (Swensen, Jerpåsen, Sæter, & Tveit, 2012). This in turn may help to promote the sustainable development of the area after dramatic change. Additionally, in the aftermath of catastrophic change such as forest fires, the inclusion of the public in rehabilitation and decision making processes is recognised as helping to facilitate individuals' recovery (Burns, Taylor, & Hogan, 2008; Eisenman et al., 2015). We would add that knowledge of the relevance of activities undertaken in an area prior to catastrophic landscape change is necessary to be able to address recovery of that landscape and start to understand the individuals who engage(d) with that landscape.

Conclusion

Focusing on activity has allowed us to address how landscape identity develops and is retained in relation to engagement with the landscape and what occurs after dramatic landscape change. This supports landscape as put forward through the ELC; the results lift the relevance of engagement with the landscape as an important part of quality of life and elevate the need to recognise everyday landscapes. The landscape, the related activities and their perceptions from before the fire still live on in the memories of those who foraged in this landscape. These memories provide continuity in this landscape and provide anchors for forming new identities in this landscape.

Note

1. 'Natural disaster' is employed here for convenience; however, we acknowledge the debates regarding the coupling of human and natural systems in such events (Dalby, 2013).

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by the Svenska Forskningsrådet Formas [2014-1876].

ORCID

Andrew Butler  <http://orcid.org/0000-0002-4928-1849>

Elin Ångman  <http://orcid.org/0000-0003-1117-0518>

References

- Abraham, A., Sommerhalder, K., & Abel, T. (2010). Landscape and well-being: A scoping study on the health-promoting impact of outdoor environments. *International Journal of Public Health, 55*, 59–69.
- Albrecht, G., Sartore, G.-M., Connor, L., Higginbotham, N., Freeman, S., Kelly, B., ... Pollard, G. (2007). Solastalgia: The distress caused by environmental change. *Australasian Psychiatry, 15*, S95–S98.
- Brown, B. B., & Perkins, D. D. (1992). Disruptions in place attachment. In I. Altman & S. M. Low (Eds.), *Place attachment*. New York: Plenum Press.
- Burns, M., Taylor, J., & Hogan, J. (2008). Integrative healing: The importance of community collaboration in postfire recovery and prefire planning. In W. Martin, C. Raish, & B. Kent (Eds.), *Wildfire risk: Human perceptions and management implications*. Washington, DC: RFF Press.
- Butler, A. 2014. *Developing theory of public involvement in landscape planning: Democratising landscape* (Doctoral Thesis No2014:52). Swedish University of Agricultural Sciences, Uppsala.
- Butler, A., Sarlöv-Herlin, I., Knez, I., Ångman, E., Sang, Å., & Åkerskog, A. (2017). *Landscape identity, before and after a forest fire*. *Landscape Research, 43* (6), 878–889.
- Casey, E. S. (2000). *Remembering: A phenomenological*. Bloomington: Indiana University Press.
- Castells, M. (1997). *The power of identity: The information age – economy, society and culture*. Oxford, Blackwell.
- Conway, M. A., Singer, J. A., & Tagini, A. (2004). The self and autobiographical memory: Correspondence and coherence. *Social Cognition, 22*, 495–537.
- Council of Europe. (2000). *European Landscape Convention*. Florence, Strasbourg: Author.
- Cox, R. S., & Perry, K.-M. E. (2011). Like a fish out of water: reconsidering disaster recovery and the role of place and social capital in community disaster resilience. *American Journal of Community Psychology, 48*, 395–411.
- Daniel, T. C., Muhar, A., Arnberger, A., Aznar, O., Boyd, J. W., Chan, K. M. A., ... Dunk Von, A. (2012). Contributions of cultural services to the ecosystem services agenda. *Proceedings of the National Academy of Sciences of the United States of America, 23*(23), 8812–8819.
- Dalby, S. (2013). Climate Change, *The RUSI Journal, 158* (3), 34–43.
- Dixon, J., & Durrheim, K. (2000). Displacing place-identity: A discursive approach to locating self and other. *British Journal of Social Psychology, 39*, 27–44.
- Egoz, S. (2012). Landscape and identity: Beyond a geography of one place. In P. Howard, I. Thompson, & E. Waterton (Eds.), *The Routledge companion to landscape studies*. London: Routledge.
- Eisenman, D., Mccaffrey, S., Donatello, I., & Marshal, G. (2015). An ecosystems and vulnerable populations perspective on Solastalgia and psychological distress after a wildfire. *EcoHealth, 12*, 602–610.
- Eiter, S. (2010). Landscape as an area perceived through activity: Implications for diversity management and conservation. *Landscape Research, 35*, 339–359.
- Fredman, P., Karlsson, S.-E., Romild, E., & Sandell, K. (2008). Besöka naturen: Hemma eller borta? Delresultat från en nationell enkät om friluftsliv och naturturism i Sverige. Rapport No. 3, *Forskningsprogrammet: Friluftsliv i förändring, Östersund*.
- Gecas, V., & Burke, P. (1995). Self and identity. In K. Cook, A. Fine, & J. House (Eds.), *Sociological perspectives in social psychology*. Boston: Allyn & Bacon.

- Gill, A. M. (2005). Landscape fires as social disasters: An overview of 'the bushfire problem'. *Environmental Hazards*, 60, 65–80.
- Gordon, J., Gruver, J., Flint, C., & Luloff, A. E. (2013). Perceptions of wildfire and landscape change in the Kenai Peninsula, Alaska. *Environmental Management*, 52, 807–820.
- Guha-Sapir, D., & Hoyois, P. (2015). *Estimating populations affected by disasters: A review of methodological issues and research gaps*. Brussels: Centre for Research on the Epidemiology of Disasters (CRED), Institute of Health and Society (IRSS), Université catholique de Louvain.
- Gustavsson, K. (2014). Skogsbrand i Västmanland Västerås: Länsstyrelsen Västmanlands län.
- Hague, C., & Jenkins, P. (2005). *Place, identity, participation and planning*. Abingdon, Oxon: Routledge.
- Hamin, E., & Ryan, R. (2008). Wildfires, communities, and agencies: Stakeholders' perceptions of postfire forest restoration and rehabilitation. *Journal of Forestry*, 106, 370–379.
- Ingold, T. (2011). *Being alive: Essays on movement, knowledge and description*. Abingdon: Routledge.
- James, W. (1890/1950). *The principles of psychology*. New York: Dover.
- Knez, I. (2005). Attachment and identity as related to a place and its perceived climate. *Journal of Environmental Psychology*, 25, 207–218.
- Knez, I. (2006). Autobiographical memories of places. *Memory*, 14, 359–377.
- Knez, I. (2014). Place and the self: An autobiographical memory synthesis. *Philosophical Psychology*, 2, 164–192.
- Knez, I., Butler, A., Sang, Å. O., Ångman, E., Sarlöv-Herlin, I., & Åkerskog, A. (2018). Before and after a natural disaster: disruption in emotion component of place-identity and wellbeing. *Journal of Environmental Psychology*, 55, 11–17.
- Knez, I., & Eliasson, I. (2017). Relationships between personal and collective place identity and wellbeing in mountain communities. *Frontiers in Psychology*, 8.
- Kulig, J., Townsend, I., Edge, D., Reimer, W., & Lightfoot, N. (2013). Impacts of wildfires: Aftermath at individual and community levels? *Australian Journal of Emergency Management*, 28, 29–34.
- Lorimer, H. (2012). Surfaces and slopes. *Performance Research*, 17, 83–86.
- Loupa Ramos, I., Bernardo, F., Ribeiro, S. C., & Van Eetvelde, V. (2016). Landscape identity: Implications for policy making. *Land Use Policy*, 53, 36–43.
- National Trust. (2017). Places that make us. Retrieved from: <https://www.nationaltrust.org.uk/documents/places-that-make-us-research-report.pdf>
- Ness, S. (2011). Bouldering in Yosemite: Emergent signs of place and landscape. *American Anthropologist*, 113, 71–87.
- Nettleton, S. (2015). Fell runners and walking walls: Towards a sociology of living landscapes and aesthetic atmospheres as an alternative to landscape picturesque. *The British Journal of Sociology*, 66, 759–778.
- Oliver-Smith, A. (1996). Anthropological research on hazards and disasters. *Annual Review of Anthropology*, 25, 303–328.
- Olwig, K. (2002). *Landscape, nature and the body politic: From Britain's renaissance to America's new world*. Madison: University of Wisconsin Press.
- Olwig, K. (2005). The landscape of "customary" law versus that of "natural" law. *Landscape Research*, 30, 299–320.
- Onsten-Molander, A. (2016). *Landskapskaraktersanalys för Västmanland län*. Västerås: Länsstyrelsen i Västmanlandslän.
- Paasi, A. (2002). Bounded spaces in the mobile world: Deconstructing 'regional identity'. *Tijdschrift voor economische en sociale geografie*, 93, 137–148.
- Plieninger, T., Draux, H., Fagerholm, N., Bieling, C., Bürgi, M., Kizos, T., ... Verburg, P. (2016). The driving forces of landscape change in Europe: A systematic review of the evidence. *Land Use Policy*, 57, 204–214.
- Qviström, M. (2016). The nature of running: On embedded landscape ideals in leisure planning. *Urban Forestry & Urban Greening*, 17, 202–210.
- Reed, M. (2008). Stakeholder participation for environmental management: A literature review. *Biological Conservation*, 141, 2417–2431.
- Relph, E. (1976). *Place and placelessness*. London: Pion Limited.
- Ruiz, C., & Hernández, B. (2014). Emotions and coping strategies during an episode of volcanic activity and their relations to place attachment. *Journal of Environmental Psychology*, 38, 279–287.
- Rumbach, A., Makarewicz, C., & Németh, J. (2016). The importance of place in early disaster recovery: A case study of the 2013 Colorado floods. *Journal of Environmental Planning and Management*, 59, 2045–2206.
- Sandell, K., & Fredman, P. (2010). The right of public access – opportunity or obstacle for nature tourism in Sweden? *Scandinavian Journal of Hospitality and Tourism*, 10, 291–309.
- Sandell, K., & Svenning, M. (2011). *Allemansrätten och dess framtid*. Stockholm: Naturvårdsverket.
- Scott, A. (2002). Assessing public perception of landscape: The LANDMAP experience. *Landscape Research*, 27, 271–295.
- Scott, A., Carter, C., Brown, K., & White, V. (2009). 'seeing is not everything': Exploring the landscape experiences of different publics. *Landscape Research*, 34, 397–424.
- Silver, A., & Grek-Martin, J. (2015). "Now we understand what community really means": Reconceptualizing the role of sense of place in the disaster recovery process. *Journal of Environmental Psychology*, 42, 32–41.
- Stobbelaar, D., & Pedrolí, B. (2011). Perspectives on landscape identity: A conceptual challenge. *Landscape Research*, 36, 321–339.
- Swanwick, C. (2009). Society's attitudes to and preferences for land and landscape. *Land Use Policy*, 26, S62–S75.

- Swensen, G., Jerpåsen, G., Sæter, O., & Tveit, M. (2012). Alternative perspectives? The implementation of public participation in local heritage planning. *Norsk Geografisk Tidsskrift – Norwegian Journal of Geography*, 66.
- Toman, E., Stidham, M., Mccaffrey, S., & Shindler, B. (2013). *Social science at the wildland-urban interface: A compendium of research results to create fire-adapted communities*, Delaware. Ohio: United States Department of Agriculture Forest Service, Northern Research Station.
- Tulving, E. (2002). Chronesthesia: Awareness of subjective time. In D. T. Stuss & R. C. Knight (Eds.), *Principles of frontal lobe function*. New York: Oxford University Press.
- Twigger-Ross, C., Bonaiuto, M., & Breakwell, G. (2003). Identity theories and environmental psychology. In M. Bonnes, T. Lee, & M. Bonaiuto (Eds.), *Psychological theories for environmental issues*. Aldershot: Ashgate.
- Twigger-Ross, C., & Uzzell, D. (1996). Place and identity processes. *Journal of Environmental Psychology*, 16, 205–220.
- Wang, Q. (2008). On the cultural constitution of collective memory. *Memory*, 16, 305–317.
- Wheeler, R. (2014). Mining memories in a rural community: Landscape, temporality and place identity. *Journal of Rural Studies*, 36, 22–32.
- Wylie, J. (2002). An essay on ascending Glastonbury Tor. *Geoforum*, 33, 441–454.