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Relational values of nature: leverage points for nature policy in Europe

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ABSTRACT

Relational values reflect the qualities of the *relationships* between humans and nature, such as care, social bonding, place attachment and spiritual meanings. In this perspective article, we argue that understanding relational values is vital for nature conservation, and we identify how incorporation of these values may function as leverage points for achieving more effective nature policy. We discuss the distinctive features of the concept of relational values and elaborate how relational values strongly influence people's perceptions of, engagement with and action for nature. Relational values can also provide important deep leverage points for policy interventions aiming to support citizen's contribution to nature conservation, to strengthen biodiversity policy and the relationship between people and nature. Based on three realms of leverage (re-think, re-structure and re-connect), we distinguish six routes through which relational values can be integrated in policies and practices of nature conservation: (1) incorporation of pluralized meanings of nature; (2) the uptake of relational language in policy discourse; (3) a prioritization of landscape-based policy; (4) empowering citizens in nature conservation; (5) re-orienting nature education to stimulate people's personal bond with nature; and (6) using digital technology to stimulate new relationships with nature.

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1. Introduction

In the search for effective leverage points towards sustainability, relational values of nature appear to hold significant potential. Relational values of nature reflect the manifold *relationships* between humans and nature and are rooted in these relationships themselves. Examples include social bonding (Sheremata 2018), care (Chan et al. 2016), responsibility (Diver et al. 2019), place attachment (Chan et al. 2016), meaningful life (Van den Born et al. 2017), and spiritual or religious meanings (Knippenberg et al. 2018).

The concept of relational values has gained a prominent place in contemporary debates about nature conservation. This has been greatly enhanced by the desire of the International Panel for Biodiversity and Ecosystem Services (IPBES) to move beyond the valuation of nature as either a resource for human use or as something which should be protected for its own sake (Chan et al. 2018). This article aims to advance the debate on the importance of relational values and their incorporation in nature conservation through an empirical perspective on the potential of relational values for informing nature policy. The main objective of this article is therefore twofold: (1) to illustrate the importance of relational values for European nature

policy and (2) to identify routes through which incorporation of these values can function as deep leverage points for strengthening policies and practices of nature conservation.

After an elaboration on the background and methodology of this perspective article in Section two, we discuss the concept of relational values in Section three. In the fourth part of this article, we illustrate the importance of relational values for understanding how people perceive, connect to and act for nature. In the fifth Section, we argue the importance of recognising relational values in policy, including how relational values have transformative potential in terms of environmental citizenship. In Section six, we identify and illustrate six routes for how relational values can work to strengthen nature conservation policy and practice. Section seven concludes with a reflection on the importance of incorporating relational values on a European scale.

2. Background and methodology

In terms of process, the origins of this perspective article can be traced back to the ALTER-NET conference which took place in Ghent, Belgium in June 2019. The goal of this conference was to share

the latest insights regarding European ecosystems and nature conservation, and to use this as input to formulate recommendations for the post-2020 EU Biodiversity Strategy. During this conference, the first three authors of this article organised a session on the relevance of relational values for biodiversity policy, leading to rich discussions between presenters and audience (scientists, conservationists and policy makers with a predominantly European background). Afterwards, the session's presenters were asked to jointly formulate a number of policy recommendations and present these in a plenary session. Inspired by the positive responses and lively debate which this session evoked, including on its implications for European biodiversity policy, it was then decided to further reflect and build upon these recommendations in order to develop a joint perspective article.

In order to shape and structure the perspective article presented here, we drew on an interrelated set of three techniques. For the empirical illustrations throughout the manuscript, we drew on a combination of previous empirical work carried out by the authors and a supporting literature study to identify further case material. In addition, for identifying the routes presented in section six we used the work of Abson et al. (2017) to structure the identification of promising leverage points. These authors drew on Meadows (1999) to identify a hierarchy of leverage points, running from shallower leverage points (including interventions aimed at system parameters, such as adjusting subsidies or taxes) to deeper ones that alter the *design* or even the *intent* of policies and institutions. This aligns well with calls for nature policy to move beyond shallower interventions. For instance, the Summary for Policy Makers of the recent IPBES report advocates fundamental changes in social norms, policy and education 'since current structures often inhibit sustainable development and actually represent the indirect drivers of biodiversity loss' (Díaz et al. 2019, p. 16).

Abson et al. (2017, p. 34–35) address transformational sustainability interventions and structure their discussion of leverage points using three realms of deep leverage: *re-think*, *re-structure* and *re-connect*. *Re-think* concerns how we think, learn and speak about the world around us, especially 'the way in which problems are framed and how knowledge is produced' (ibid, p.35), e.g. how knowledge production and framing influence both the intent and design of nature policy. *Re-structure* concerns leverage points to trigger institutional change, related both to formal institutions (i.e. legislation, binding rules and standards or contractual agreements) but also informal ways of working and (sometimes unspoken) agreements on how people work and cooperate. *Re-connect* highlights the importance of people's relationships with nature and local landscapes (including physical but also emotional connections), recognising

the importance of these relationships as essential to a 'good life' (ibid, p.34) and how this drives action for nature (Van den Born et al. 2017). We used these three realms of leverage as a structuring device to identify six routes (two for each realm) through which recognising relational values can contribute towards transformative change in European nature conservation.

3. The concept of relational values and its distinctive features

Much nature policy rests on recognition of two types of values of nature: *instrumental values* (nature has value because it grants us, e.g. food, shelter or relaxation) and *intrinsic values* (nature has value in itself, independent of human valuers). However, Chan et al. (2016, p. 1463) note that 'although intrinsic and instrumental values are critical to conservation, thinking only in these terms may miss a fundamental basis of concern for nature'. They argue for enriching the debate through recognition of a third important value: *relational values*.

Relational values can be distinguished from instrumental and intrinsic values in several ways. The value of the relationship between a person and a tree (or for instance an animal or place) is not found in either the person or tree, but in the connection between the two. With the concept of relational values, humans and nature are therefore not seen as separate entities: humans are part of nature and value their relationship with it (Knippenberg et al. 2018). This does not imply that nature's instrumental and intrinsic values are not important, but recognising relational values shifts our focus to also acknowledging the qualities of the relationships themselves (Chan et al. 2016).

A second distinguishable aspect of relational values compared to instrumental values is that they are non-substitutable (Himes and Muraca 2018). In the same way that cherished friends or loved ones cannot be replaced by an equivalent other with similar characteristics, so too are the landscapes and species with which we bond not easily replaced by something 'just like it'. Relational values thus raise fundamental concerns regarding practices such as biodiversity offsetting: while instrumental values of nature (e.g. timber supply) can be effectively offset, relational values cannot. People bond with a specific forest landscape, not with 'forests' as a general abstraction.

Third, whereas intrinsic values of nature are inherent to a natural entity, and instrumental value is a one-way street (nature has value for a human valuer), relational values concern relationships that are reciprocal. With this, it is recognized that humans and nature also shape and influence each other and how we as humans fundamentally depend on nature. This reciprocity is emphasized by activists, scientists

and indigenous communities to express how nature provides for us, but we should also provide for and take care of nature (Diver et al. 2019; Gould et al. 2019).

Together, these three distinguishing aspects of relational values (relationships themselves being of value, non-substitutability and reciprocity) have innovative power for nature policies. People may take action for nature driven by any combination of instrumental, intrinsic and relational values (Chan et al. 2018). As such, it is important to emphasise that relational values are not presented as something which should replace any acknowledgement of instrumental and intrinsic values. However, scholars have warned that focussing only on instrumental and intrinsic value in policy could alienate and demotivate people who take action driven by their relationships with nature, with relational values being 'reflective of the largely intuitive ways that people make decisions, understand the world and decide what is right' (Klain et al. 2017, p. 2). From this perspective, relational values resonate with and motivate a much broader audience, and thus 'may offer more powerful leverage for conservation than emphasis on instrumental or intrinsic values' (Klain et al. 2017, p. 16).

4. Relational values and people's action for nature

Relational values are not just important in a conceptual sense; they matter greatly for how people perceive, engage with and act for nature. Whereas science and policy work with abstractions, people are driven by relationships with concrete entities and landscapes. A variety of literature on active citizenship highlights how many people nowadays pursue their own interests, objectives and ideals in public life – also in the field of nature conservation (Van Dam 2016). Below, we link to studies on active citizenship for nature to illustrate the importance of relational values for motivating actions for nature.

A variety of studies have highlighted how volunteers and activists in conservation are not only motivated by the urge to protect nature but also by motivations related to living a meaningful life and strengthening relationships with human and more-than-human others (Admiraal et al. 2017; Molinaro et al. 2019). Through this bonding, volunteers increasingly identify with specific landscapes or green areas, which is in turn an important motivation to become more active in local volunteering activities (Pagès et al. 2018; Schild 2018). In literature on stewardship, understood as the 'wise and responsible use of natural resources' (West et al. 2018, p. 30), relational values are also found to be of importance for the actions that people

employ (ibid.). For instance, several scholars have described how relational values are important drivers for motivating landscape stewardship among local stakeholders (Winkler and Hauck 2019).

The increasing prominence of citizen initiatives and citizen science in nature conservation also appears to be an expression of relational values of nature. Ganzevoort et al. (2017) found that biodiversity citizen scientists rate their connection with nature as the most important motivation for their activities, and Dunkley (2019) illustrates how some citizens' ecological monitoring expresses a lifelong affective relationship with landscape and place. Scholars have also demonstrated that this relationship may grow and change through engagement in citizen science (Haywood 2019). Based on a case study of rural communities in Southern Transylvania (Romania), Horcea-Milcu et al. (2018) found that, next to utilitarian values of the land for sustenance, inhabitants also related to the local landscape through historical and spiritual ties, connections with local wildlife and social relationships tied to the land. The authors illustrate how these deeply held human-nature relationships continue to strongly influence how people relate to and work the land, despite the changing economic and political context. In Western-European settings, we also see that diverse relationships with cherished landscapes are vital for the mobilisation of self-organizing citizens in restoring, maintaining or developing their green living environment (Van Dam 2016). Not only are initiators frequently driven by such bonds, they also inspire others to (re)connect with these places. In turn, this developing relation helps build the perseverance necessary for local initiatives to deal with the inevitable bumps while realizing their goals.

5. The importance of relational values for nature policy

To illustrate the relevance of relational values for policy, we present here how relational values can drive policy *resistance* when citizens rise up to promote or protect relational values which they feel are insufficiently incorporated in policy and management of green spaces. However, relational values also offer potential for policy makers to *engage* with citizens for the benefit of nature conservation.

5.1. Relational values can drive policy resistance

Buijs and Lawrence (2013) highlight that people's relationships with nature are generally not recognized in decision-making models in Western forestry sectors. Additionally, decision-making in the nature conservation sector is often strongly instrumental or intrinsically oriented, i.e. biodiversity and economy

based. Consequently, people's other relationships with nature are at risk of going unnoticed and unappreciated (Klain et al. 2017). No wonder that the literature provides many examples in which people experience that their relational values, embedded for instance in sense of place (Mannarini et al. 2009; Raymond et al. 2019) or recreational activities (Elands and van Marwijk 2012) are threatened by policy initiatives, including policies that aim to contribute to nature conservation (De Groot and De Groot 2009).

Overlooking relational values, policy makers and green space managers are often surprised when people protest against the felling of trees (Buijs and Lawrence 2013). One example of how strongly people may defend relational values is the case of Heiderijk (NL), where a forested area was scheduled to be cut and replaced by heathland. As soon as the first trees were cut – with little consultation of citizens – this led to local protests. Many citizens expressed their connection to the forest and shared stories about what the area means to them, presented on a website called 'Save our Forest' (Red ons Bos 2010). These stories provide valuable insights into the motivations of citizens to protest and articulate a wide range of relational values, including place attachment and a connection with local landscape history. These values were neither recognized by green space managers nor incorporated in policy. Eventually, increasingly fierce protests led to an abolishment of plans for nature development, conserving about 75% of the original forested area.

When policy makers aim for locally embedded nature conservation, it is vital that they are receptive of and responsive to people's relational values of nature. Not only because a lack of recognition of these values is a missed opportunity to connect with citizens but also because ignoring relational values invokes a serious risk of opposition to policy and management. In a world where many citizens increasingly take the initiative to act in the public domain (Hajer et al. 2015), policy makers would do well to realize that often, relational values drive these initiatives.

5.2. Relational values can drive citizen engagement

Recent discourses on public engagement stress the transformative potential of active citizenship (Hajer et al. 2015; Buijs et al. 2019). Citizens may contribute to environmental benefits, social benefits and significant change in dominant governance regimes. This is also relevant for policy makers: there are many examples of local citizen initiatives contributing to a wide range of conservation (policy) objectives (Aalbers and Sehested 2018; Mattijssen et al. 2018). In this context, cooperation between (local) governments/administration and citizens

can lead to mutual benefits and the realization of joint objectives (Franklin and Marsden 2015).

Relational values provide an important perspective through which policy makers can engage with citizens. Based on leverage theories, Ives et al. (2018) suggest that active citizenship can show transformative potential through linking activities to different types of nature connections: material, experiential, cognitive, emotional and philosophical connections (see also Riechers et al. *in press*). They consider especially the emotional and philosophical relationships (which are reflective of people's relational values) as transformative in environmental citizenship. The recognition of and respect for relational values of nature can thus be an important step towards fruitful conservation partnerships between citizens and public administration.

An interesting example of such a partnership can be found in the Dutch city of Amersfoort, where self-organizing citizens cooperated with local administration in order to redevelop a brownfield into a green space. Mattijssen et al. (2019) highlight how these developments were driven by citizen-promoted discourses. Citizens highlighted the importance of biodiversity as well as recreational values, but relational values also played a clear role: the brownfield was considered part of a local landscape with its own natural and cultural history (Stichting Heiligenbergerbeekdal 2014). To strengthen this narrative, citizens organized excursions to promote experiencing the area, explaining how redevelopment of the former brownfield would let it become a part of the landscape once more. Eventually, the plans to redevelop the area were influenced by references to the historical landscape. This case illustrates how policy makers can connect with active citizens on the basis of relational values and how this can lead to the realization of nature policy objectives as well as social and environmental benefits for citizens.

6. Routes for incorporating relational values in policy

Relational values are not only potential leverage points for active citizenship, as elucidated in the previous section, but for *designing* better nature policy as well. The limited acknowledgement of relational values may be one of the reasons why nature policy generally falls short in effectively addressing the biodiversity crisis, as well as why current policies often provoke resistance or alienate citizens. Therefore, in this section, we distinguish six possible 'routes' through which relational values could be incorporated more effectively in nature conservation policies and practices. As explained in the methodological section, we do so by building upon the three realms of leverage of Abson et al. (2017): *re-think*, *re-structure* and *re-connect*. *Re-think* below is

particularly related to new meanings and language of nature in nature policy; *re-structure* to integrated landscape and participatory approaches; and *re-connect* to new modes of environmental education and digitalization of nature practices (see Table 1). In each realm, we distinguish two routes, so we consider six in total, and each comes with a European example. These six are based on interdisciplinary expert judgement of the author team, drawing on the wide range of expertise represented (environmental philosophy, psychology, sociology, economics and policy sciences). We recognise that this list is not exhaustive and that other routes could be identified, but we consider these of significant potential given our (extensive but fallible) expertise and experience in the aforementioned fields of study.

6.1. Incorporation of pluralized meanings of nature in policy making

As Abson et al. (2017) emphasize, re-thinking nature should also include the views and understandings of societal actors other than scientists and policy makers. In this context, we first of all argue that nature policy should become much more sensitive to the fact that people and communities hold many different meanings of nature, often based on very local and personal relationships with specific landscapes. This implies that nature has to be addressed and incorporated as a ‘pluralized’ concept in policy making (Himes and Muraca 2018). The public basis of nature policies does not only lie in the need to generate ‘services’ or protect and strengthen (global) biodiversity: it also lies in the desire to address the myriad of ‘natures’ that are home to all of us. In this context, different human perceptions of and relations with nature should be better incorporated in nature policies and the non-substitutability of relational values should be recognized. To illustrate this: the Saami people, who live in Lapland (Northern Norway, Sweden, Finland), have over 1000 words for classifying reindeer according to sex, appearance, ownership and character (James 2020). Their traditional way of living is closely linked with the migration of this species and in some places herd size even translates into the number of votes which people have in the local ‘herding districts’. In order to meaningfully engage with Saami people about their

environment, understanding their relationship with reindeer is a crucial basis for finding common ground and designing effective reindeer conservation policy (ibid.).

6.2. Incorporation of relational language in policy discourse

Secondly, we argue that relational values and the associated relational language should become part of public, political, policy and legal discourses. Re-thinking our relationship with nature requires consideration of how nature is framed and understood (Abson et al. 2017) – and thus, consideration of the language which is used. In many debates and policies, nature has become an abstract notion, often equated to ‘biodiversity’ or ‘ecosystem services’. But people, ourselves included, do not have relationships with abstract concepts. Current public language – particularly framing our engagement with nature in terms of ‘services’ – effectively blocks the possibility to talk in a suitable and significant way about people-nature relationships and the values they embody. This deficiency should be addressed by conservation leaders, NGOs, scientists and politicians, so that our language may more accurately reflect relational values of nature and a shared emotional connection with the general public can be developed (Buijs and Elands 2013; De Groot 2015; Klain et al. 2017). An interesting illustration of this is the new ‘forest strategy’ of the Dutch government (Ministerie van Landbouw 2020), which is currently being operationalized. This strategy explicitly recognizes relational values – in addition to the instrumental and intrinsic ones: ‘... *forest also has a relational value. Trees give meaning to our life and contribute to our cultural identity* (p.3)’ With this, the forest strategy explicitly aims to incorporate relational values in future forest policy and management.

6.3. The need for integrated landscape policy

A landscape, as defined in the European Landscape Convention, is ‘an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors’ (Council of Europe 2000, p. 2). Landscapes are large repositories of relational values and strong motivators for

Table 1. Six routes for incorporating relational values in policy.

Realms of leverage	Policy routes	Examples
<i>Re-think</i>	1. Pluralized meanings of nature in policy making	Saami human-animal relationships in Lapland
<i>Re-structure</i>	2. Relational language in policy discourse	Forest strategy Dutch government
	3. Integrated landscape policy	European sectoral policies
<i>Re-connect</i>	4. Participation and empowerment of citizens in policymaking	Active citizen participation in water management (Finland) and community forestry (the UK)
	5. Reorientation of nature education	School conservation project in Sweden
	6. Digital engagement with nature	Apps and virtual reality

conservation action and sustainable use, as they both embed and are embedded in daily language and practice (Stenseke 2018). We shape the landscape and the landscape shapes us; we call it home and perceive it as part of our identity. Bringing back the meaning and language of landscape in policy, linking it to nature, land use and local identity, and basing policies on these premises, is also a way to strengthen policy making through relational values. This also means that nature conservation should not be approached from a narrow, sectoral perspective. Rather, a relational perspective calls for an integrated landscape approach, promoting the view that nature is part of the landscape in which it is embedded. This is also a question of scale: locally embedded, geared to local experience, local land use, local history and local nature, and giving meaning to communities and people. From a relational perspective, formal institutions – which play a crucial role in the realm of re-structure (Abson et al. 2017) – should (re)prioritize landscape policy. As the work of Van der Sluis (2017) on European landscapes illustrates, the socio-cultural experience of the landscape is often insufficiently protected by sectoral policy frameworks. For example, landscape is mostly ignored in European policy frameworks, such as the Common Agricultural Policy or the Habitat Directive, primarily due to their strong sectoral focus. And when landscapes are considered at the European level, such as in the Landscape Convention of the Council of Europe, these instruments are voluntary and non-binding. Thus, while we would need strong integrated landscape approaches to address relational values on the one hand and protect landscape qualities on the other, current policies and practices are either sectoral or soft. This situation urges for a deep restructuring of prevailing land use policies and institutions, including on nature and agriculture.

6.4. Participation and empowerment: a stronger say for citizens

To accommodate diverse meanings, relationships and landscape qualities, devolution or decentralization of nature, water and land use policies offers opportunities to strengthen relational values in nature conservation practices. This fits Abson et al. (2017)'s realm of re-structure as it implies institutional changes in how people's relationship with nature is incorporated in the formulation and implementation of policy. However, this route only applies when citizens truly get a stronger voice in (local) policy-making and/or become empowered through new tools and budgets. This requires a genuinely open space for citizens' voices, but also adherence to the regulatory limits, and incorporation of the above-mentioned conditions of plural understandings of

nature, relational language and a landscape focus. Providing this voice to local citizens or others who have a relationship with the landscape can be done in many different ways: from consulting citizens and other stakeholders on their priorities to co-creation and co-management of green space – and everything in-between. People's relational values motivate them to be involved in landscape management, and giving them such a voice in policy can further strengthen these relational values. An example can be found in the UK, where community forestry is actively encouraged by the Scottish, English and Welsh governments. In 2015, there were more than 600 of these community forests across the UK, characterized by local ownership and often involving a wide range of actors (Lawrence and Ambrose-Oji 2015). In a similar vein, the municipality of Helsinki (Finland) started an 'adopt a brook' campaign (Vierikko and Niemelä 2016) to offer citizens more direct influence to ensure that their sense of place and emotional connections with the landscape were incorporated in water management. Yet, 'true' participation and empowerment urges for deep institutional change in many nature policy arrangements around Europe and beyond, and at the same time they are no 'silver bullets' for solving all policy problems at the same time. Opportunities for and approaches to citizen participation differ wildly even within Europe, and participation may also reinforce inequalities in power, knowledge and access to nature (Paloniemi et al. 2015).

6.5. A reorientation of environmental education

Current trends in urbanization as well as technological developments imply that (direct) nature experiences of (young) people occur less and less naturally (Soga and Gaston 2016). One of the potential risks of these trends is a growing lack of a basic feeling and understanding of how social and ecological systems are fundamentally interconnected. Leverage points in the realm of re-connect address the above disconnection with nature (Abson et al. 2017). As has been shown, direct relationships with nature offer the strongest inspiration and motivation for children and adults to develop an interest in the natural world and in conservation (Van den Born et al. 2017). Incorporating relational values into environmental education could help shape a new educational approach that intervenes at deeper leverage points to enhance people's connections to nature and conservation: thus based on local, personal and sensory experiences. One example is a salamander project in the outskirts of Stockholm, Sweden (Giusti 2019), in which 10-year-old students were responsible for saving and documenting endangered salamander species. After participating, children demonstrated empathy

with salamanders and concern for their livelihoods. In addition, their general relationship to nature was influenced, indicating a deeper relational change (Ives et al. 2018).

6.6. Digital engagement with nature

Research has highlighted how people's connection to nature has shifted as a consequence of digitalization (Saker and Frith 2019). While this is often identified as a cause for a growing disconnection between people and nature (Soga and Gaston 2016), and thus for a declining support base for nature policy, it also offers potential to develop new relationships by promoting new interactions between people and nature – thus addressing Abson et al. (2017)'s realm of re-connect. Technological innovations such as webcams and drones offer a wide array of new possibilities to experience nature, and a rapidly increasing number of apps and games incorporate nature experiences. While these 'second-hand' experiences do not replace an immersion in 'real world' nature, it has been documented that they do contribute to environmental literacy (Liu et al. 2019). In agreement with Dorward et al. (2017), we argue that especially applications which lead people into real-life green areas can contribute to new relationships with these areas, building new types of relational values of nature. A good example of this are the many species identification apps that have been developed recently (Jepson and Ladle 2016). In addition, through virtual reality games like Pokémon Go, although often not directly focused on nature conservation, many people have also been stimulated to visit green areas (Dorward et al. 2017).

7. Conclusions

In this perspective article, we illustrate how relational values play an important role in understanding how people relate to and take action for nature. Relational values are crucial motivations for people to take such actions: this includes local landscape stewards, biodiversity citizen scientists, and citizens actively engaging with nature policy initiatives (including through acts of resistance). We suggest six routes through which these values can be incorporated in European nature policy in order to function as deep leverage points. Using the framework of *re-think*, *re-design* and *re-connect* (Abson et al. 2017) to structure these routes, we would argue that incorporating relational values across these 'three R's' is important for strengthening nature conservation across the globe. However, this article focuses on European policy, and we recognize that promising routes may be different in other settings. We hope that our contribution to this important debate will be an inspiration to

scholars and practitioners in different cultural and geographic contexts. We therefore close this article with an invitation for others to reflect on how incorporating relational values may function as a deep leverage point in other political and geographical contexts through spurring re-thinking and re-designing nature policy and re-connecting with nature.

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References

- Aalbers CBEM, Sehested K. 2018. Critical upscaling. How citizens' initiatives can contribute to a transition in governance and quality of urban greenspace. *Urban For Urban Greening*. 29:261–275. doi:10.1016/j.ufug.2017.12.005.
- Abson DJ, Fischer J, Leventon J, Newig J, Schomerus T, Vilsmaier U, von Wehrden H, Abernethy P, Ives CD, Jager NW, et al. 2017. Leverage points for sustainability transformation. *Ambio*. 46:30–39. doi:10.1007/s13280-016-0800-y.
- Admiraal JF, Van Den Born RJG, Beringer A, Bonaiuto F, Cicero L, Hiedanpää J, Knights P, Knippenberg LWJ, Molinaro E, Musters CJM, et al. 2017. Motivations for committed nature conservation action in Europe. *Environ Conserv*. 44:148–157. doi:10.1017/S037689291700008X.
- Buijs A, Hansen R, Van der Jagt S, Ambrose-Oji B, Elands B, Lorange Rall E, Mattijssen T, Pauleit S, Runhaar H, Stahl Olafsson A, et al. 2019. Mosaic governance for urban green infrastructure: upscaling active citizenship from a local government perspective. *Urban For Urban Greening*. 40:53–62. doi:10.1016/j.ufug.2018.06.011.
- Buijs A, Lawrence A. 2013. Emotional conflicts in rational forestry: towards a research agenda for understanding emotions in environmental conflicts. *For Policy Econ*. 33:104–111. doi:10.1016/j.forpol.2012.09.002.
- Buijs AE, Elands BHM. 2013. Does expertise matter? An in-depth understanding of people's structure of thoughts on nature and its management implications. *Biol Conserv*. 168:184–191. doi:10.1016/j.biocon.2013.08.020.
- Chan KMA, Balvanera P, Benessaiah K, Chapman M, Díaz S, Gómez-Baggethun E, Gould R, Hannahs N,

- Jax K, Klain S, et al. 2016. Opinion: why protect nature? Rethinking values and the environment. *Proc Nat Acad Sci.* 113:1462. doi:10.1073/pnas.1525002113.
- Chan KMA, Gould RK, Pascual U. 2018. Editorial overview: relational values: what are they, and what's the fuss about? *Curr Opin Environ Sustainability.* 35:A1–A7. doi:10.1016/j.cosust.2018.11.003.
- Council of Europe. 2000. European landscape convention. ETS No.176. Florence.
- De Groot M, De Groot WT. 2009. Room for river measures and public visions in the Netherlands: A survey on river perceptions among riverside residents. *Water Resour Res.* 45:W07403. doi:10.1029/2008WR007339.
- De Groot WT. 2015. De meent, de wil en taal. Nijmegen: Radboud University.
- Díaz S, Settele J, Brondízio ES, Ngo HT, Guèze M, Agard J, Arneth A, Balvanera P, Brauman KA, Butchart SHM, et al. 2019. Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. IPBES secretariat. Bonn. p. 56.
- Diver S, Vaughan M, Baker-Médard M, Lukacs H. 2019. Recognizing “reciprocal relations” to restore community access to land and water. *Int J Commons.* 13:400–429. doi:10.18352/ijc.881.
- Dorward LJ, Mittermeier JC, Sandbrook C, Spooner F. 2017. Pokémon go: benefits, costs, and lessons for the conservation movement. *Conserv Lett.* 10:160–165. doi:10.1111/conl.12326.
- Dunkley RA. 2019. Monitoring ecological change in UK woodlands and rivers: an exploration of the relational geographies of citizen science. *Trans Inst Br Geogr.* 44:16–31. doi:10.1111/tran.12258.
- Elands B, van Marwijk HM. 2012. Policy and management for forest and nature based recreation and tourism. *For Policy Econ.* 2012:1–3.
- Franklin A, Marsden T. 2015. (Dis)connected communities and sustainable place-making. *Local Environ.* 20:940–956. doi:10.1080/13549839.2013.879852.
- Ganzevoort W, Van den Born RJG, Halffman W, Turnhout S. 2017. Sharing biodiversity data: citizen scientists' concerns and motivations. *Biodivers Conserv.* 26:2821–2837. doi:10.1007/s10531-017-1391-z.
- Giusti M. 2019. Human-nature relationships in context: experiential, psychological, and contextual dimensions that shape children's desire to protect nature. *Plos One.* 14:e0225951. doi:10.1371/journal.pone.0225951.
- Gould RK, Pai M, Muraca B, Chan KM. 2019. He 'ike 'ana ia i ka pono (it is a recognizing of the right thing): how one indigenous worldview informs relational values and social values. *Sustainability Sci.* 14:1213–1232. doi:10.1007/s11625-019-00721-9.
- Hajer M, Nilsson M, Raworth K, Bakker P, Berkhout F, de Boer Y, Rockström J, Ludwig K, Kok M. 2015. Beyond cockpit-ism: four insights to enhance the transformative potential of the sustainable development goals. *Sustainability (Switzerland).* 7:1651–1660. doi:10.3390/su7021651.
- Haywood B. 2019. Citizen science as a catalyst for place meaning and attachment. *Environ Space Place.* 11:126–151. doi:10.5749/envispacplac.11.1.0126.
- Himes A, Muraca B. 2018. Relational values: the key to pluralistic valuation of ecosystem services. *Curr Opin Environ Sustainability.* 35:1–7. doi:10.1016/j.cosust.2018.09.005.
- Horcea-Milcu AI, Abson DJ, Dorresteijn I, Loos J, Hanspach J, Fischer J. 2018. The role of co-evolutionary development and value change debt in navigating transitioning cultural landscapes: the case of Southern Transylvania. *J Environ Plann Manage.* 61:800–817. doi:10.1080/09640568.2017.1332985.
- Ives CD, Abson DJ, von Wehrden H, Dorninger C, Klaniecki K, Fischer J. 2018. Reconnecting with nature for sustainability. *Sustainability Sci.* 13(5):1389–1397. doi:10.1007/s11625-018-0542-9.
- James S. 2020. Legal rights and nature's contributions to people: is there a connection? *Biol Conserv.* 241:108325. doi:10.1016/j.biocon.2019.108325.
- Jepson P, Ladle RJ. 2016. Erratum to: nature apps: waiting for the revolution. *Ambio.* 45(2):266. doi:10.1007/s13280-015-0739-4.
- Klain SC, Olmsted P, Chan KMA, Satterfield T, Zia A. 2017. Relational values resonate broadly and differently than intrinsic or instrumental values, or the New Ecological Paradigm. *Plos One.* 12(8):e0183962. doi:10.1371/journal.pone.0183962.
- Knippenberg L, de Groot WT, van den Born RJG, Knights P, Muraca B. 2018. Relational value, partnership, eudaimonia: a review. *Curr Opin Environ Sustainability.* 35:39–45. doi:10.1016/j.cosust.2018.10.022.
- Lawrence A, Ambrose-Oji B. 2015. Beauty, friends, power, money: navigating the impacts of community woodlands. *The Geographical Journal.* 181(3):268–279. doi:10.1111/geoj.12094.
- Liu Q, Cheng Z, Chen M. 2019. Effects of environmental education on environmental ethics and literacy based on virtual reality technology. *Electronic Library.*
- Mannarini T, Roccato M, Fedi A, Rovere A. 2009. Six factors fostering protest: predicting participation in locally unwanted land uses movements. *Polit Psychol.* 30:895–920. doi:10.1111/j.1467-9221.2009.00732.x.
- Mattijssen T, Buijs A, Elands B. 2018. The benefits of self-governance for nature conservation: A study on active citizenship in the Netherlands. *J Nat Conserv.* 43:19–26. doi:10.1016/j.jnc.2018.01.006.
- Mattijssen TJM, Elands BHM, Buijs AE, Elands BHM, van Dam RI, Donders JLM. 2019. The transformative potential of active citizenship: understanding changes in local governance practices. *Sustainability.* 11:5781. doi:10.3390/su11205781.
- Meadows D. 1999. Leverage points: places to intervene in a system. Hartland: The Sustainability Institute.
- Ministerie van Landbouw, Natuur en Voedselkwaliteit. 2020. Ambities en doelen van Rijk en provincies voor de Bossenstrategie. Den Haag: Ministerie van Landbouw, Natuur en Voedselkwaliteit.
- Molinario E, Kruglanski AW, Bonaiuto F, Bonnes M, Cicero L, Fornara F, Scopelliti M, Admiraal J, Beringer A, Dedeurwaerdere T, et al. 2019. Motivations to act for the protection of nature biodiversity and the environment: a matter of “Significance”. *Environ Behav.* 52:1133–1163.
- Pages M, Fischer A, van der Wal R. 2018. The dynamics of volunteer motivations for engaging in the management of invasive plants: insights from a mixed-methods study on Scottish seabird islands. *J Environ Plann Manage.* 61:904–923.
- Paloniemi R, Apostolopoulou E, Cent J, Bormpoudakis D, Scott A, Grodzińska-Jurczak M, Tzanopoulos J, Koivulehto M, Pietrzyk-Kaszyńska A, Pantis JD. 2015. Public participation and environmental justice in

- biodiversity governance in Finland, Greece, Poland and the UK. *Environ Policy Governance*. 25:330–342.
- Raymond CM, Diduck AP, Buijs A, Boerchers M, Moquin R. 2019. Exploring the co-benefits (and costs) of home gardening for biodiversity conservation. *Local Environ*. 24:258–273.
- Red ons Bos. 2010. Red het bos! Stop de kaalslag. Red Ons Bos. <http://redonsbos.blogspot.com/p/een-greep-uit-naar-ook-ons-gestuurd.html>.
- Riechers MA, Balázs A, Garcia-Llorentec M, Loos J. *in press*. Human-nature connectedness as leverage point for sustainability transformation. *Ecosyst People*.
- Saker M, Frith J. 2019. From hybrid space to dislocated space: mobile virtual reality and a third stage of mobile media theory. *New Media Soc*. 21:214–228.
- Schild R. 2018. Fostering environmental citizenship: the motivations and outcomes of civic recreation. *J Environ Plann Manage*. 61:924–949.
- Sheremata M. 2018. Listening to relational values in the era of rapid environmental change in the Inuit Nunangat. *Curr Opin Environ Sustainability*. 35:75–81.
- Soga M, Gaston KJ. 2016. Extinction of experience: the loss of human-nature interactions. *Front Ecol Environ*. 14:94–101.
- Stenseke M. 2018. Connecting ‘relational values’ and relational landscape approaches. *Curr Opin Environ Sustainability*. 35:82–88.
- Stichting Heiligenbergerbeekdal. 2014. Het Beekdal.
- Van Dam R. 2016. Bonding by doing: the dynamics of self-organizing groups of citizens taking charge of their living environment. Wageningen: Wageningen University Research; p. 188.
- Van den Born RJG, Arts B, Admiraal J, Beringer A, Knights P, Molinario E, Horvat KP, Porrás-Gómez C, Smrekar A, Soethe N, et al. 2017. The missing pillar: eudemonic values in the justification of nature conservation. *J Environ Plann Manage*. 61:841–856.
- Van der Sluis T. 2017. Europe: the paradox of landscape change - a case-study based contribution to the understanding of landscape transitions, *Forest and Nature Conservation Policy*. Wageningen: Wageningen University Research; p. 228.
- Vierikko K, Niemelä J. 2016. Bottom-up thinking—Identifying socio-cultural values of ecosystem services in local blue-green infrastructure planning in Helsinki, Finland. *Land Use Policy*. 50:537–547.
- West S, Haider LJ, Masterson V, Enqvist JP, Svedin U, Tengö M. 2018. Stewardship, care and relational values. *Curr Opin Environ Sustainability*. 35:30–38.
- Winkler KJ, Hauck J. 2019. Landscape stewardship for a German UNESCO Biosphere Reserve: a network approach to establishing stewardship governance. *Ecol Soc*. 24:12.