

## RESEARCH ARTICLE



# Place-embedded agency: Exploring knowledge–place connections for enabling plurality in governance of social–ecological systems

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## Abstract

1. Including different forms of knowledges and views in decision-making is crucial to managing the complexity of social–ecological systems (SES) in ways that are inclusive and embrace diversity.
2. Sense of place scholarship can explain subjectivity in SES; however, it has hardly been considered together with the literature on knowledge processes, overlooking the epistemic dimension of sense of place and its potential to shed light on the roles and views of individuals in respect to natural resources and their management.
3. This paper explores how local knowledge and place-belonging (as a form of sense of place) intersect, and what kinds of implications these knowledge–place connections have for the interactions between actors and their agency in the High Coast/Kvarken Archipelago UNESCO World Heritage Site (Sweden/Finland).
4. Drawing on participant observation in workshops and semi-structured interviews with diverse actors in this transboundary governance context, we identify five types of knowledge–place connections, which exemplify diverse positions on local knowledge shaped by place-belonging.
5. We propose a concept of place-embedded agency to reveal how these positions shape action and interaction between people inside and outside formal decision-making processes. We argue that recognising and taking place-embedded agency into account can help to overcome tensions and enhance plurality in SES governance.

## KEYWORDS

agency, ecosystem governance, local knowledge, place-belonging, social–ecological systems, World Heritage

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## 1 | INTRODUCTION

The complexity of social–ecological systems (SES) requires the representation and inclusion of disparate views in their management and governance. This is often approached from the perspective of how to include multiple ways of knowing into decision-making (Clark et al., 2016; Norström et al., 2020; West et al., 2019). It is indeed widely agreed in the SES literature and resilience-based scholarship that generating meaningful and legitimate solutions to address wicked social–ecological sustainability challenges requires weaving together different knowledge systems, such as expert, scientific domains, and local and indigenous knowledges (e.g. Ballard et al., 2008; Rathwell et al., 2015; Tengö et al., 2014, 2017). Equally, environmental governance can be framed as epistemic processes encompassing various ways of knowing and power relations (van der Molen, 2018). Analysing the potential for pluralism and contestation of views and knowledge claims in knowledge co-production is essential to improving governance of ecosystems and decision-making that is both socially just and ecologically sustainable (Berbés-Blázquez et al., 2016; Caniglia et al., 2020; Wyborn et al., 2020).

Both SES and environmental governance scholarships emphasise the need for new forms of knowledge interactions which transform the current fragmented, disconnected and hegemonic knowledge systems into those that embrace diversity, justice and reflexivity and enable meeting the rapidly changing societal needs of science and society (see Fazey et al., 2020). Understanding these interactions requires situating various forms and systems of knowledge within specific contexts and places (Caniglia et al., 2020; Norström et al., 2020; Raymond et al., 2021), including the socio-political contexts that shape knowledge processes and their outcomes (van Kerkhoff & Pilbeam, 2017). It is thus crucial to engage with situated and contextualised inquiries into knowledge, meanings and agency in environmental decision-making and SES research (Boonstra, 2016; Cote & Nightingale, 2012; Stone-Jovicich, 2015) and the subjective and personal nature of knowledge production embedded in values and the contextual factors of individuals and society (Raymond, Brown, & Weber, 2010; Raymond, Fazey, et al., 2010). This builds towards pluralist collaborative and participatory governance processes that recognise the inherently political nature of knowledge (Turnhout, 2018).

However, some recent examples illustrate the difficulty in situating knowledge and grasping the plurality in research practice: Varghese and Crawford (2020) show that researchers do not often define what is meant by different knowledge systems in a study context. Stepanova et al. (2019) instead argue that researchers approach different ways of knowing in a pre-determined manner in the natural resources management literature. O'Connor et al.'s (2021) case studies in Australia and South Africa indicate that various actors in co-production processes, such as environmental managers, are often treated as a homogeneous group, ignoring their diverse expertise and knowledge sources. Because knowledge interactions are at the heart of the SES management (Berkes, 2009; Berkes et al., 2003), their embeddedness in a place and the interrelated subjectivity merit further attention to facilitate a broader inclusion of actors and

their cultural and political perspectives in management of such systems (Castro, 2021; Cockburn et al., 2018; Turnhout et al., 2020).

Approaching the interface between knowledge and place, place-based research indicates the importance of further exploration of place in relation to knowledge, the agency of individuals, interactions between different actors and the situatedness of actors in a SES (Balvanera, Calderón-Contreras, et al., 2017; Cockburn et al., 2018). Ingalls et al. (2019) argue that the identification of the 'desirable state' of a SES is a complex process characterised by histories, power dynamics, and various place meanings and narratives, which requires analysing the subjective and normative dimensions of SES within specific places (Stedman, 2016).

On these lines, the notion of sense of place in SES research is gaining ground as a way to deal with the subjectivity, conflicting visions and multiple meanings that an SES involves (Ingalls & Stedman, 2016; Masterson et al., 2017; Masterson, Enqvist, et al., 2019; Stedman, 2016). Broadly, sense of place refers to the individual and shared feelings and emotions that a place evokes (Creswell, 2004) or to a process through which an individual or a group derives meanings, beliefs, symbols, values and feelings from a particular place, which can change over time (Chapin & Knapp, 2015). An exploration of sense of place enables a shift from co-management rhetoric to a deeper consideration of the equity of distribution of gains or losses across a community with respect to ecosystem management (Masterson, Spierenburg, & Tengö, 2019). It contributes to developing solutions to sustainability issues taking account of people's motivations and what they care about (Masterson et al., 2017). Understanding knowledge interactions in ecosystem governance could thus benefit from taking into account the subjective and sensibilities of place, which are not only grounded in one's knowledge of place, but also in the deeper cognitive and affective meanings linked to people–place relationships (Raymond et al., 2017).

In this study, we focus on place-belonging as a specific dimension of sense of place, which enables a descriptive exploration of connections to a place through the 'feeling of home' formed through social and affective as well as material and physical aspects of place (Raffaetà & Duff, 2013; Tomaney, 2015). To date, the knowledge processes literature and sense of place scholarship have hardly been considered together to unpack ecosystem governance dynamics (Castro, 2021). The article has three objectives: (i) to explore the multiple perceptions of local knowledge as situated in a particular place; (ii) to understand and map the knowledge–place connections of diverse actors and (iii) investigate how these knowledge–place connections may shape actor agency in a SES. We hypothesise that focusing on knowledge–place connections may improve the management of the contestations between actors who may draw upon different epistemic (building on Hakkarainen et al., 2020) as well as relational understanding of people–place interactions (building on Masterson, Spierenburg, & Tengö, 2019). We draw on relational understanding of agency in which individuals are nested in social structures and emotional responses from which agency, capacity to act, emerges (Burkitt, 2016). Ideally, the place-based emphasis in multiple epistemic connections and

the diverse positions of people enable movement towards inclusive and collaborative approaches to ecosystem governance from technocratic top-down decision-making based on formal expertise (Manzo et al., 2021).

To address our research objectives, we take a case study approach and examine the transnational High Coast/Kvarken Archipelago UNESCO Natural World Heritage Site located on each side of the Gulf of Bothnia, the northern extension of the Baltic Sea, in Sweden and Finland. Claims that local knowledge has been overlooked in the governance of the site have been made, particularly on the Finnish side, both by local actors and in previous research (see Svendsen, 2017). Simultaneously, the transboundary management of the World Heritage Site is developing. The first shared management plan is currently being formulated (2020–2022). The exploration of diverse perceptions in this context becomes relevant for understanding how differing and possibly conflicting views can be taken into account so as not to reproduce unequal power dynamics (Ingalls & Stedman, 2016). By including both sides of the World Heritage Site, we seek to contribute to the discussion on knowledge–place connections in cross-boundary contexts and pave the way for possible transnational learning.

## 2 | THEORETICAL BACKGROUND

### 2.1 | Conceptualisations of local knowledge

Local knowledge is referred to in various ways in academic discussions. Broad definitions of local knowledge emphasise the embeddedness of knowledge in certain places. Pilgrim et al. (2008) identify the interactions with the land as the central feature of local knowledge, which can be eroded by either physical or mental disconnectedness from it. Social and cultural norms, values and institutions are also considered to shape local knowledge (Blowers et al., 2005). Raymond, Fazey, et al. (2010) suggest that local knowledge can be generated in various ways, including through traditional cultural rules and norms, more recent human–environment interactions and personal experience. However, previous research has merely focused on understanding scientific perceptions of local knowledge instead of local inhabitants' views of the concept (Taylor & de Loë, 2012).

Local knowledge is often understood as a *knowledge system*, definitions of which can vary between researchers (Varghese & Crawford, 2020). Conventionally, local knowledge systems are seen to be based on the experience and practices of non-scientists adapted to local ecosystems (Taylor & de Loë, 2012). Indigenous and local knowledge systems (ILK) are often treated together as one concept, generally defined as 'a cumulative body of knowledge, practice and belief, evolving and governed by adaptive processes and handed down and across (through) generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment' (Berkes, 2008 as cited in Tengö et al., 2017). Local ecological knowledge (LEK) and traditional

ecological knowledge (TEK) are parts of ILK. Both LEK and TEK are types of knowledge of a specific group about their local ecosystems, with the difference that TEK has historical and cultural continuity of resource use, whereas LEK presents more recent ecological knowledge and might be intermingled with scientific and practical knowledge (Olsson & Folke, 2001).

Recently, more attention has been given to cultural aspects of local knowledge highlighted in the concepts such as place-based and vernacular knowledge (Lowe et al., 2019; Simpson et al., 2015), bio-cultural diversity (Elands et al., 2015; Merçon et al., 2019; Sterling et al., 2017) and ecocultural resilience (Pretty, 2011), bridging the dualistic 'social' and 'ecological' categories of SES (West et al., 2020). These concepts invite combining the values and beliefs of communities with local and expert scientific knowledge to enhance the legitimacy of decision-making (Simpson et al., 2015) and implement culturally appropriate programmes through intertwining culturally grounded knowledge production with generalised knowledge production (Sterling et al., 2017). Following these lines, Merçon et al. (2019) propose that the biocultural paradigm for sustainability research and policy spheres could serve to identify ways of conceiving and experiencing nature and their cultural embeddedness. However, the authors argue that SES discourse about sustainability is still largely quantitative and academically orientated, and that the typical ecological approach to assessing system dynamics results in a paucity of attention to power relations and social inequalities embedded in SES (Merçon et al., 2019).

Acknowledging that there are many entry points to knowledge in sustainability research (Apetrei et al., 2021), we consider knowledge here as a process of simultaneously knowing and acting which has a particular focus on applying expertise (Griffin et al., 1999). Local knowledge is created in relation to a place, yet it is shaped by various individual experiences and relations to other knowledges (Nazarea, 2006; Raymond, Fazey, et al., 2010). Even though knowledge is locally or regionally maintained, it is in constant interaction with other forms of knowledges (Tengö et al., 2017). It is therefore dynamic and not static, but is 'kept alive and meaningful in the local' (Castro, 2021, 267).

The following section explores sense of place and how belonging offers a means of understanding the nuances in local knowledge.

### 2.2 | Contextualising local knowledge through place-belonging as a form of sense of place

The sense of place literature is rich and includes multiple (meta)-theories and interrelated concepts from fields such as psychology and human geography developed over many decades of research. This study draws upon the emerging systemic meta-theory, which highlights the importance of place as a social–ecological assemblage affected by and affecting people who are embedded in places (Williams & Miller, 2021). Within this tradition, Stedman (2016) proposes that a sense of place can help to address the subjectivity of perceptions and actions of processes such as transitions, tipping

points and transformations typical of SES research by drawing attention to the creation of meaning and the plurality of meanings in a society.

Here we focus on two important elements of the sense of place: place meanings and the interrelated concept of place-belonging. Place meanings refer to descriptive attributes of place, symbolic meanings or place characters and answer questions such as what a place is like or what it is (Masterson et al., 2017). They are informed by diverse place-based experiences grounded in physical, personal, social, biological and ecological features (Masterson et al., 2017) or the interrelations among them (Raymond et al., 2017).

Place-belonging relates to place meanings as characterising concerns of 'feeling at home' and 'feeling safe' (Tomaney, 2015), which reflect the descriptive and symbolic attributes of place meanings (Masterson et al., 2017). Hence, place meanings can result in belonging (Castro, 2021; Saar & Palang, 2009). Belonging entails social and affective achievement that is linked to material and physical territories (Raffaetà & Duff, 2013) as involvement in our environment—'being-in-the-world' (Easthope, 2009).

Belonging also constitutes a defining factor of place identity thought of as feelings about a specific physical setting and symbolic connections to place that define who we are (Raymond, Brown, & Weber, 2010). Consequently, measures of place identity include statements about belonging (Hernández Bernardo et al., 2010). Belonging is referred to as 'the glue linking place and identity', which involves social factors and the physical structures of a place (McCreanor et al., 2006). Identity through belonging is also formed through collective processes of loyalty, solidarity and senses of affinity that shape the ways in which an individual is included in and identifies with the social and physical aspects of a place (Pollini, 2005).

Place-belonging as a form of the sense of place is used in this study because it enables a descriptive exploration of connections to a place in relation to perceptions of local knowledge. Like local knowledge, belonging may also be experienced in relation to several places but it exists in relation to the local world (Tomaney, 2015), and is not a given but a dynamic and fluid process (Savage et al., 2005). It implies the human emotional need to be part of a group or something bigger than themselves (Escalera-Reyes, 2020) and can be approached from the perspectives of inclusiveness and exclusiveness in a place (Ralph & Staeheli, 2011), featuring states of belonging and unbelonging (Savage et al., 2005). Belonging relates to power dynamics in that dominant groups can define its terms (Trudeau, 2006) and can thus together with consideration of knowledge processes reveal how and whose views and voices are included in decision-making about SES. Given that sense of belonging is associated with different forms of place experiences, subjective, social, affective and physical (Raffaetà & Duff, 2013; Ralph & Staeheli, 2011), it is possible that one's perceptions of local knowledge, formed in relation to human-environmental relationships, experiences and cultural norms (Raymond, Brown, & Weber, 2010; Raymond, Fazey, et al., 2010), are also informed by their place-belonging.

## 3 | METHODS

### 3.1 | Case Study description

The Kvarken Archipelago (Finland) and the High Coast (Sweden) are located on each side of the Gulf of Bothnia in the northern extension of the Baltic Sea. Together, the areas form the High Coast/Kvarken Archipelago transnational World Natural Heritage site. World Heritage status was first issued to the Swedish site in 2000, and then to the Finnish site in 2006, both because of their geological uniqueness. Both areas have the highest rates of isostatic uplift (land rise) in the world. Socio-economic patterns in the areas are similar: traditional farming and fishing communities are transforming their livelihoods to include tourism and nature protection, depopulation is taking place and work and education require commuting or outmigration (Svels, 2015). The High Coast World Heritage site is located in the municipalities of Kramfors and Örnsköldsvik with c. 4500 inhabitants in the actual World Heritage area and the Kvarken archipelago is in the municipalities of Korsnäs, Malax, Korsholm, Vasa and Vorå with c. 2500 permanent inhabitants in the World Heritage site. UNESCO does not have executive power in the governance of these areas. In Sweden, governance is organised under the National Nature Heritage Board and the Environmental Protection Agency with the County Administration of Västernorrland County being the regional executive authority. In Finland, the World Heritage Site falls under the Ministry of Culture and Education and the Ministry of Environment and the executive power regionally belongs to Metsähallitus, the state authority that governs and manages state-owned water and land in Finland. The history of the top-down state regulation of the Finnish site led to a conflict between some local residents and the state agencies stemming from the implementation of the Natura 2000 areas in the early 2000. These strong divides are still manifest in the public discussion about the management and development of the area, which showcases the tensions over the agency of local actors in relation to the management bodies.

### 3.2 | Data collection

A case study design (Yin, 2014) was applied to allow for in-depth analysis of a phenomenon in a real-world context. Qualitative studies have been recognised and are essential to explore less well-understood and emergent aspects of the sense of place: They have particular strength in revealing power dynamics and conflicting perspectives (Manzo & Pinto de Carvalho, 2021). Qualitative data collection was informed by social constructivism and phenomenology to understand how people create meaning in a place and make sense of their relationship to this place through experience (Bailey et al., 2016; Seamon, 2018). The qualitative approach we chose is not intended to generalise findings but rather to provide for in-depth understanding of the topics investigated.

The study follows the ethical procedure of the Natural Resources Institute Finland and the ethics review was approved by

**TABLE 1** Interviewee characteristics ( $N = 28$ ) and their official connections to the World Heritage Site

Demographics	N	Connection to the world heritage site	N
Sweden	11	State/County	8
Finland	17	Municipality	6
Women	15	Local organisation	5
Men	13	Museum, school	3
Originally from the area	17	Local entrepreneur	5
Resident less than 10 years	5	Tourism company	1
Resident more than 10 years, but not born in the area	6		

the RECOMS MSC\_ITN project ethics committee and the unit leader of the lead author. Written informed consent to participate was obtained from all the participants. Data collection involved two phases: participant observation and in-depth interviews. In phase one, the lead author conducted participant observation in two rounds of participatory workshops organised and hosted by the County Board of Västernorrland and Metsähallitus. The workshops were a part of an ongoing project (2018–2021), which aims at creating a new plan for nature–culture guidance in the World Heritage area. The workshops were open to anyone to participate. Participants included a wide range of people such as local entrepreneurs, municipality employees, museum and schools staff members and other inhabitants. Two workshops were held in October 2018 and three in January 2019, of which three were in Finland and two in Sweden. Participant observation served as a way to familiarise with the study context, gain insights into current issues and opinions, and make connections with actors in the area.

In phase two, we invited the participants involved in the January workshops to be interviewed ( $N = 24$ ). The exploratory nature of the study prevented us from applying a strict sampling criterion but we invited all willing workshop participants to be interviewed to capture their wide range of views. We made connections with four additional interviewees based on snowball and purposive sampling (Bernard, 2006) with the aim of reaching actors working in the various World Heritage municipalities as well as to capture the more critical views of actors who would not participate in events organised by the official local governance bodies. We conducted qualitative interviews ( $N = 28$ ) of between 30 and 90 min duration in Finnish or Swedish with actors who had professional and/or a personal connections to the area. The interviews were flexible and exploratory. We intentionally kept the questions open to capture unexpected views that were not anticipated by the theoretical background, following the abductive reasoning of data collection (Timmermans & Tavory, 2012). The interviews involved questions about actors' perceptions of local knowledge and its uses, knowledge processes and participation in the governance of the site as well as their personal history in relation to the place, place connections, such as their favourite places, the importance of these places and their meanings. Acknowledging that it is difficult to ask questions about abstract topics such as knowledge, the subject was probed using multiple questions such

as: *Who has local knowledge in this area? What is local knowledge related to? Do you have local knowledge? What is your local knowledge related to? And, how have you gained this knowledge?* The importance of place-belonging in respect to local knowledge emerged partly from these responses as local knowledge was constantly discussed in relation to belonging and perceptions of the area and other actors in the area.

The interviewees included people working for the Finnish state Swedish county administrations and municipalities, including local politicians, active members of local organisations (such as local NGOs, village associations, land owner associations and the World Heritage Delegation on the Finnish side), people working in education and culture, local entrepreneurs and a tourism company (Table 1). All the interviewees either lived in the actual World Heritage Site or in the World Heritage municipalities.

### 3.3 | Analysis

We analysed the data thematically to keep the coding process flexible and to be able to create a rich and detailed account of data (Braun & Clarke, 2006), generating patterns under the three research objectives of this article. We conducted several rounds of thematic coding using the Atlas.ti qualitative data analysis software including compiling the data, creating and combining codes and themes and finally interpreting them (Castleberry & Nolen, 2018). The coding not only focused on the most dominant views, but also less frequently cited perspectives to capture the variety of important aspects in relation to the research objectives (Braun & Clarke, 2006).

We compiled the typology (Findings: Table 3) of the repeated data patterns through the coding process. The typology was formed when the coding process showed how local knowledge was constantly discussed in relation to personal history in the area and a feeling of belonging as well as to other actors from whom patterns in ways of approaching local knowledges could be identified. In addition to these aspects of place-belonging that emerged in relation to local knowledge, we used the origins of actors and length of residency to organise the typology because it has been shown to be a strong predictor of forming people–place bonds (Lewicka, 2011). Building on the notion of insideness and outsideness of a place (Relph, 1976; Seamon, 2018) and the possibility of experiencing



Theme	Explanation	Frequency
Spatial	Local knowledge related spatially to place and location of things	11
Cultural-historical	Local knowledge related to past historical events and/or cultural expressions such as stories and place names	11
Holistic	Local knowledge as a feature underpinning everyday life including multiple aspects such as natural, societal and cultural historical	8
Livelihoods	Local knowledge strongly linked to current and/or past nature-based livelihoods such as agriculture, fishery, hunting	7
Nature	Local knowledge linked to understanding local nature and its phenomena	7
Identity	Local knowledge as part of self	5
Experience	Local knowledge described as an experience of the place or in tacit ways through being in/feeling the place	4
Societal	Local knowledge linked to the society and how it works such as knowing people, municipality and having social networks	2

**TABLE 2** Frequency of interviewees ( $N = 28$ ) mentioning different dimensions of local knowledge (each theme counted only once per interview)

stages of belonging and unbelonging (Savage et al., 2005), we applied the notion of insidedness of actors' relationships to local knowledge as an organisational category to conceptualise the level of immersion to it through belonging to a place.

## 4 | FINDINGS

### 4.1 | Perceptions of local knowledge

The interviewees were asked to describe how they generally related to the idea of local knowledge. The answers present several aspects ranging from knowledge about nature, culture, history or the societal context to general understandings of the surrounding place. In this section, we first present the different general perceptions of local knowledge and then we specify the views of actors on what their own local knowledge included. We provide an overview of the themes identified across all the interviewees—whether actors inside or outside formal decision-making processes—and then conclude by reflecting upon some differences encountered between these two groups.

Over a third of the interviewees (Table 2) emphasised the spatial aspects of local knowledge relating it to specific places or seeing it as having different scales such as the village, municipality or region. In such views, local knowledge was presented through words such as 'kilometres, different levels', 'place-related and specific' and 'visiting/known places'. An equally prominent theme was relating local knowledge to cultural-historical aspects such as one's past life and historical events in the area. Under this theme, local stories were mentioned a few times, relating them to local knowledge such as: 'It is when folks who live here say what they have experienced and seen in

relation to land rise at least. They have noticed changes over time. [...] There is local knowledge around these historical stories. They perhaps have connections' (F, County, Sweden).

Some of the interviewees approached local knowledge through nature-based livelihoods such as fishing, forestry and agriculture. This theme was sometimes also strongly linked with knowledge about nature:

*If you are going to live from fishery, hunting or agriculture, you learn very quickly that you cannot do it if things are not in balance. You cannot fish an empty sea. If so you live in abundance one year but starve in the next. [...] The thing with protection is – yes it is a good idea – but this philosophy behind management, to keep the balance is put aside and you think you do something good but the end result is something totally different, you simply shatter this balance.* (M, local organisation, Finland)

The quote illustrates the trust the interviewee has in local knowledge reflected through knowing how to maintain balance in natural resources extraction, which he contrasts with official management disturbing the balance. This was not as clearly stated by other interviewees. However, nature-based local knowledge emerged relatively often as a theme in our coding, often discussed for example in relation to the sea and conditions in the archipelago, knowing what nature looks like, how to move in the wild and knowledge of natural processes.

Some of the interviewees had a very holistic view of local knowledge that combined environmental, historical, social, societal and cultural aspects. For example, 'I consider many different perspectives. I think it [local knowledge] is partly about one being familiar with the

TABLE 3 Typology of knowledge–place connections. Five different ways to relate local knowledge and place-belonging

Relationship to local knowledge	Intersection local knowledge and belonging forming the position	Sample quotes on knowledge–place connections
<b>Position 1</b> Local knowledge insider	Originally from the area (even if they have lived elsewhere for some time), who consider their local knowledge as having come through successive generations and the time they have lived in the area	<p>It is clear [that I have local knowledge]. I was born here and I have a lot of local knowledge because I have been here a lot since I was small, and my grandparents had a boat... And I have local knowledge about the land rise, I have seen it very well</p> <p>I believe I have good local knowledge. From my mother's side we have lived here for five generations and we have 400–500 years of family history here. I have a good understanding about what has happened in this area, how it has been formed and what has been done here</p>
<b>Position 2</b> Partial local knowledge insider	Originally from the area and knows the area, but considers other people (elders, people in specific activities) as having more local knowledge	<p>No, I do not think I have [local knowledge]. There is, though, considerable knowledge among those who work with the local industries such as the fisheries, forestry and agriculture, I see those people as the experts. I maybe have, so to say, a good overview or insight. But there is this knowledge maybe, among the older generation who have really lived from fishery and agriculture and forestry, who have core knowledge. They know things precisely</p> <p>I think that those who have lived long in the village and those who maybe do not have a normal job, but who have been fishers and hunters [have local knowledge]. They move a lot in the wild and in the archipelago. I think I have local knowledge. It relates to the fact that I have always lived in the village and been out in the archipelago since I was a kid. My father was a fisher. My brothers have been fishers. [...] But I do not have local knowledge to the same extent as even older people</p>
<b>Position 3</b> Alienation from local knowledge	Originally from the area and has spent a lot of time there but does not identify with local knowledge or with 'locals'. Local knowledge is something that 'more locals' somewhere else have (e.g. in the archipelago)	<p>It is alive, this local knowledge. Those who live in the archipelago for example, they know the landscape and stony paths and know how to get around there. That is the local knowledge we need. That is one thing and the locals who have been fishers, have a lot knowledge about nature [...] I cannot really say [that I have local knowledge] but we try to collaborate to promote this cultural-heritage thing as well. It is a part of the UNESCO World Heritage agreement. [...] Well, I was born here, this is my home and therefore this place is important</p>
<b>Position 4</b> New local knowledge insider	Not originally from the area but identifies with local knowledge. Considers local knowledge as something everybody can learn and adopt, at least to some degree	<p>Even I, who was not born here, have knowledge when it comes to certain things [bird species for example] about which I know a lot. I can go out and show them to people [...] I got a commission from the County because I have this knowledge</p> <p>I do not know if you can count anyone out [of having local knowledge]. Of course those people who live here have it, but tourists also have some knowledge that they use there, they stay with some interface of local knowledge. [...] So, for local knowledge is not necessary that you have been living somewhere very long. I have learned a lot about this area even though I have lived here only for 6 years. So, in that way I have got into the local knowledge</p>
<b>Position 5</b> Local knowledge outsider	Relatively recently moved to the area. Considers perhaps having some aspects of local knowledge but makes a marked difference between themselves and those who are originally from the area and their knowledge base	<p>I have more a civil servants' local knowledge... I did not grow up here. But I think I know this area. [...] I'd like to have a pearl that is my favourite place. That is something I feel that the locals have, they feel strongly that this is theirs. It is more difficult for a person who is not from here to claim that this or that is my favourite place. [...] but one cannot say that people who have recently moved to the area do not have local knowledge. Local knowledge is something different from 30 to 50 years ago. I am thinking that people move a lot more, in and out, and it is less common that many generations have lived in the same place</p> <p>Maybe I have local knowledge but I feel like I am between these two categories [expert and local knowledge]. I have not been here very long so I cannot say I am mastering local knowledge at the level of a local person. I simply just have not been in so many places and could not transfer [knowledge about] how things are in certain places</p> <p>I am still a beginner [in local knowledge] even though I have worked here for seven years</p>

local area, geography, inhabitants, the culture of the area, its history and knowing people' (F, municipality, Finland). As this quote illustrates, interviewees with these types of views either did not pinpoint a specific aspect or an activity or did not relate local knowledge to just one phenomenon, such as nature, but presented it more as a feature underpinning everyday life.

Identity and experience emerged less frequently as coded themes, although when it was mentioned, identity was described as an inseparable aspect of local knowledge: 'If one connects it [local knowledge] with another word, it is an identity. A person within their village where one was born has an identity of those surrounding yards' (M, Municipality, Finland).

Some people emphasised local knowledge as something gained through experience, which indicates a more tacit understanding of the concept. The least prominent theme included aspects such as relating local knowledge to societal and social aspects of life, such as understanding how a municipality works or what is happening in local society generally.

#### 4.1.1 | Interviewees' perceptions of their own local knowledge

When actors were asked to describe whether they consider having local knowledge and what they have local knowledge about, almost half mentioned general knowledge about the area (often referred to in Swedish as *lokalkännedom*, or in Finnish as *paikallistuntemus*), which was used to describe such matters as knowing where things are located and how different areas look, as well as how to move in the wild:

*This knowledge about the changing landscape. So there is certain local knowledge about how it looked previously as well. That water was here previously and now it looks like this. How is it going to look in the future? That you know about these successive stages and can describe them. But it is also due to my interest in nature. That is where my knowledge is firmly rooted.* (F, Education, Finland)

As also reflected in the previous quote, almost one-third of the interviewees linked their knowledge strongly to nature such as ecological conditions of the area, birds or plants.

Another dominant theme was to relate one's own local knowledge to social and societal aspects such as understanding the mind-set of people in the area, how decision-making processes work, and even having extensive social networks, for example, 'I have a good contact network. When one has lived and moved in certain circles, one gets this local network and that is knowledge itself; to know who to make contact with in which situations' (F, State, Finland). Networks were also considered as a way to gain local knowledge, which then was also utilised in their professional spheres.

Only a few interviewees claimed to have local knowledge about historical aspects of the area. For example, a local politician in

Finland described her local knowledge as follows: 'I know the geographical areas, the basis, the conditions for living in this region. Both when it comes to language and culture, the economy and socioeconomic aspects. [...] A part of history, then I do not have that. There is a great deal of local history and there is a lot of it that I do not know about' (F, Municipality, Finland).

Similarly, a person working for a county in Sweden acknowledged his limitations in knowledge when it came to cultural-historical aspects:

*To know the local nature, that's what I am maybe good at. I am not from here, so I don't have those local connections that people have when they have lived here longer; that local knowledge that comes from a hundred years ago and so on, that I miss quite a lot. Local ecological knowledge I have, but cultural history is also very important. That is also difficult to get* (M, County, Sweden).

Both quotes illustrate the recognition of importance of historical and cultural knowledge as reflected in the general views of local knowledge as well as the difficulty in gaining this type of knowledge. This was not necessarily related to the time lived in the area, as considered in the second quote, as a similar aspect was noted in the first quote from someone who had lived her whole life there. Furthermore, social and societal knowledge were more prominent when actors considered their own local knowledge compared to the general views on local knowledge.

Comparing views between actors formally connected to decision-making processes and other actors (Table 1: Formally connected: actors in state, county, municipalities) revealed that all the actors had fairly similar views on local knowledge generally, emphasising cultural-historical aspects and nature-based livelihoods. Similarly, when actors reflected on their own local knowledge, place-related aspects and local nature knowledge were more frequently mentioned by both groups than cultural-historical aspects. The actors in the governance bodies more explicitly expressed various degrees of local knowledge that extended over a municipality or region, as well as the social aspects, such as identity and networks, whereas the other actors described a more intimate relationship with nature, such as connections with the sea, and also reflected on knowledge passed on through previous generations who had lived in the area. The formally connected actors might have expressed their perceptions more through their official positions in the interviews more than as 'local inhabitants', highlighting the various layers to relating to local knowledge. This might also be partly due to differences in backgrounds and in the time respondents had lived in the area. However, the connections with local knowledge and place varied in both groups (formally connected and other actors) and even within actors who were originally from the area, illustrating their heterogeneity. In the following section, we look more deeply into the place-belonging of actors and what implications it had for perceptions of local knowledge.



## 4.2 | Links between local knowledge and place-belonging

There were obvious differences in how local knowledge was discussed in relation to the interviewees' own place-belonging. Local knowledge was constantly reflected—in varying ways—in the time people had lived in the area and other inhabitants and their knowledge (Table 3). The physical place also shaped perceptions, particularly in Finland, where those who lived in the archipelago were sometimes only referred to as the 'locals' with actual local knowledge.

Five different patterns for the types of connections between perceptions of local knowledge and place-belonging were identifiable from the interviews (Table 3), illustrating the differing ways people can relate to local knowledge as embedded actors through place-belonging. There are differences in the relationship to local knowledge even among people who were born in the area (Positions 1–3) and those who had moved into the area more recently (Positions 4–5). Looked at through these different positions, we can see how place-belonging is entangled with the creation of attitude towards local knowledge. The first position follows the rather standardised view of local knowledge, in which local knowledge is gained through a long relationship to the place and through generations of passing on knowledge. People in this group feel highly entitled to both the place and knowledge. The second position adds a nuance to this view as it shows that a person who can feel strong belonging to the place attributes the right to present local knowledge to other people. A person in the third position alienates him/herself from local knowledge and being a local despite connections to the area. The fourth position is that people who are relatively new to the area consider themselves able to adopt and integrate into at least some aspects of local knowledge. Finally, there is a position in which a person does not want to claim a lot of local knowledge as a result of not feeling deep belonging to the area.

All the different types of knowledge–place connections were also evident within the people working in the governance bodies, such as in the municipalities and county and state authorities, which highlights the varying ways to relate to local knowledge and considerations of how it is used and gained by people who are more often exclusively related to expert/managerial knowledge. For example, a person working for the state, feeling highly connected to the area (related to position 1), described the importance of having and using her own local knowledge and reflected this in relation to the transnational nature of the World Heritage Site:

*[...] we have the archipelago in general, or archipelago life and the environment and the types of nature [as parts of the World Heritage Site]... there it is very obvious that I need to have local knowledge here. I noticed a big difference with a cross-border project with the High Coast and I have never been there and I already have a hard time understanding on the map how far from each other*

*things and places are, which are the important things that need to be emphasised and such. If you want to work with such a particular entity as the World Heritage Site, you must have local knowledge.* (F, State, Finland).

By contrast, to illustrate position 3, another state employee described the use of local knowledge as a way of reaching out to stakeholders without at any point directly linking it to her own experience of the place:

*I have to use my networks so that I can do my work well, or in general, if I just sat here in my ivory tower things would not go anywhere. I call people and organise events about any subject.* (F, State, Finland)

These positions present subjective views on the knowledge–place connections of individuals, which shape interaction as illustrated in the next section. The different positions not only indicate connections between perceptions of local knowledge and place-belonging, but also indicate views on who is perceived to be allowed to present certain knowledge systems and related expertise, and challenge rigid divisions of actors based on their official roles. However, it is important to note that a few of the interviewees did not approach local knowledge through place-belonging, considering it as an inseparable aspect of every inhabitant in the area, at least to some degree. This view could not readily be situated in the typology as local knowledge here becomes a generic universal feature of being, not expressed through gradients of subjective belonging to a place through time or social connections.

## 4.3 | Implications for knowledge-based interactions and action

Different knowledge–place connections shaped actors' interactions and potential to affect the area. Certain tensions between actors inside and outside governance processes were particularly linked to the questions of nature protection in the area, which was often talked about together with the World Heritage Site, both in Finland and Sweden, even though the World Heritage status does not imply regulations directly. The contested views were manifested in three main ways: (i) how 'locals' and their knowledge were perceived by the authorities, (ii) how requests for collaboration from the authorities were perceived by 'locals' and (iii) what kinds of expectations of expertise—and who were recognised as experts—were entertained by various actors.

The tension or disparity between knowledge and expertise was experienced from various angles. For example, one interviewee, a resident in the World Heritage area for 10 years, mentioned being surprised to be asked to share his knowledge with the County Administration. However, he also questioned the knowledge presented by the officials, relating his expertise to his own observations:

R: *The county sometimes gets in touch with us to get to find things out [...] And then I feel like 'should they not have better knowledge than I have?'*

I: *What have they asked about?*

R: *It is everything, often to do with animals and nature. Even those who are in the field, doing animal inventories, who think that they know everything. When I am out and about in my area, I see that what they find is not correct. It is not correct knowledge, at least. Yet, they present it as if it was. (M, Local entrepreneur, Sweden: R = Respondent, I=Interviewer).*

On the other hand, a Finnish interviewee, originally from the area and with family history in the area, expressed frustration about the type of collaboration of knowledge requested, often rather academic, which did not match the knowledge he would like to bring into the discussion. He described the reduction of his agency despite his long relationship with the area as illustrated in the following quote:

*We [hunters] have difficulties in collaborating in a way that will allow us to give some scientific input to climate research. Sometimes they were looking for people to do bird inventories and they asked us as well. I said I can't do this. I know two bird species: those that you boil for two hours and those you boil over two hours. [...] I have lived in the archipelago since 1961 [...] but we don't have the scientific background and we cannot do it [collaborate]. (M, Local organisation, Finland)*

On these lines, another interviewee in Finland, also originally from the area, ascribed these tensions in knowledge to what authorities draw on and how the experiences of the actual people living in the area are not taken into account:

*Nature questions are quite special [...] For example, all the people here consider cormorants as an invasive species, biologically it is not an invasive species but it is considered as such. So, one should take this experience and maybe react to the authority of this perspective. (M, Local organisation, Finland)*

The quote also reflects the larger fundamental conflicts on the Finnish side when it comes to environmental protection which started with the top-down implementation of Natura 2000. On a similar matter, a municipal politician reflects on the legitimacy of statements made by people outside the area raising the question of degrees of expertise and the importance of place connections having agency in questions in certain areas:

*It is common here in our regions that people think that some nature organizations in Tampere and Helsinki*

*[bigger cities outside the study area] have their own opinions... But it is difficult to understand the relevance of some of these here. These people, who have never been here in their lives, have strong opinions about how should it be here. There should be a balance between having influence and being a living part of it... and that is not always the case. (M, Municipality, Finland)*

However, another perspective, from a person who had recently moved to the area, highlights the possibility of place-belonging leading to making over-confident knowledge claims:

*The fact that one is from here already gives an insider engagement. But I also think it can give false self-confidence only because one is originally from here (...) I see that to truly understand things there also needs to be scientific knowledge but maybe I don't think it is the only knowledge that is needed. (M, Museum, Finland).*

An often presented view, appearing in both countries, was the feeling that the authorities were not including the lived experience in the place or local understanding in the governance of the World Heritage Site, for example, knowledge about the tourism industry, its impacts and needs, or regarding environmental regulations.

Some of the interviewees expressed concerns about the environment and ecological sustainability of the area and how it had been changing because of streams of tourists, feeling unable to affect the current development. This was particularly apparent on the Swedish side where there are more visitors to the World Heritage Site than on the Finnish side. It was thought that the authorities were not doing enough to protect the environment because they were prioritising income from tourist flows, and that they might not be aware of the impact of tourist flows on the environment at the local level.

There was a difference in how some authorities in Finland and Sweden positioned themselves in relation to local knowledge. A civil servant in Sweden thought the County Board represented local nature-based knowledge to certain degree, although perhaps lacking the cultural and historical aspects, whereas a Finnish correspondent, although expressing a feeling of belonging to the area, clearly differentiated between local authorities and local knowledge, stating 'we authorities cannot think as locals' in terms of environmental issues, implying at the same time that local knowledge and practices were something harmful in principle, and distancing him/herself from them. Another Finnish civil servant stated that 'we don't discuss things based on opinions', emphasising that official expert knowledge and natural values overrode other aspects. This demonstrates a strong tendency to relate to expertise as something possessed by officials, and to see other actors as merely having opinions, rather than being relevant knowledge holders or experts on a place in their own right. In these views, 'being a local' and deep connections with the place are portrayed rather as a hindrance to the credibility of knowledge claims.

A number of factors were mentioned as obstacles to inclusion of different views and forms of knowledge in nature management and conservation in both Finland and Sweden. These included a lack of suitable arenas and platforms for open discussion, a lack of resources and over-emphasis on natural sciences, as well as a lack of interest among inhabitants in participating in such structures and difficulty in reaching interested people when there were opportunities to participate. Hence, although greater inclusivity and participation by local actors was seen as an ideal, the agency of actors beyond formal decision-making processes was reduced by lack of both opportunity and their own interest and the feeling of being able and having the right knowledge to contribute. It is also important to note that participation in itself does not lead to an ability to influence, but depends on whether the exchanged or co-created knowledge is actually applied to action and implementation beyond a participatory process or is knowledge that only relates to the decision-maker's agenda being applied. This tension becomes evident in the following quote:

*We try to take this [local knowledge] into account, and yes, we do take it into account. But not in the way they ['locals'] would like to. That's where the contradictions emerge from. But if we didn't ask for this knowledge from them at all, it would be an even bigger scandal.*  
(F, State, Finland)

A strong narrative of a conflict between authorities and local inhabitants was particularly apparent on the Finnish side, even when the respondent did not consider him or herself to be part of this conflict. At the same time, many interviewees had neutral or even positive attitudes towards the governance of the area, which demonstrates the importance of promoting nuanced views of knowledge interfaces that reach beyond the conflicts and tensions that have dominated and sometimes even paralysed discussions of the management and governance of the World Heritage Site.

## 5 | DISCUSSION

### 5.1 | The multiple perceptions of local knowledge in a place

Local knowledge was found to represent various and varying dimensions of cultural, historical nature-bases and social aspects for the actors concerned. The scarce literature including the views of multiple actors on local knowledge (see Taylor & de Loë, 2012) has shown that spatiality, relationship with the area, ecological conditions and land management practices feature in the definitions of local knowledge by actors outside academia. Our findings follow a similar pattern to some degree, although cultural and historical knowledge was emphasised by many actors in our case study in discussing local knowledge in general terms. This study shows that cultural diversity is reflected in local knowledge and what is being

deemed local knowledge. This finding calls for more heed to local knowledge that runs beyond ecological aspects or is directly related to environmental or landscape management extending it to the cultural diversity (Merçon et al., 2019; Balvanera, Calderón-Contreras, et al., 2017), and to more holistic understandings of the concept of intertwined social and ecological spheres (West et al., 2020). We thus argue that while it is important to understand the significance and definitions of forms of knowledges presented by researchers (Stepanova et al., 2019), the understandings of a variety of knowledge holders *outside* of academia are essential to culturally situate knowledge production (Arora-Jonsson, 2016). Exploring the different perceptions of knowledges can help to shed light on power dynamics in the decision-making of a SES in which cultural identity, local knowledge and expert science create a political and contested context (Sjölander-Lindqvist, 2008).

We found that different aspects were related to the generic idea of local knowledge when actors talked about their own local knowledge, which less often had linkages to historical knowledge or nature-based livelihoods among the group of interviewees. This highlights the subjectivity of knowledge formulation beyond a narrow focus on general meanings of local knowledge (Raymond, Brown, & Weber, 2010; Raymond, Fazey, et al., 2010). It seems that an ideal of local knowledge as something traditional and created within nature-based livelihoods over generations, following definitions of indigenous and local knowledge and traditional ecological knowledge in academia (e.g. Berkes, 2008), is also entertained by people outside academia in the study context. In addition to possible TEK, it is important to consider people's knowledge related to new drivers that are changing the local environment such as tourism in the study context, to guide the management of the SES. Exploring local knowledge in a particular place and from the perspective of local inhabitants brings a wide range of perceptions and the role of place into the discussion more profoundly and without staying at the level of abstraction of academic discussion. Pre-determined ideas of local knowledge can emphasise the urge to maintain specific units of knowledge, which, according to Gómez-Baggethun and Reyes-García (2013), is less important than the ability of a society to generate, transform, convey and apply knowledge. Accordingly, the resilience of an SES depends more on these knowledge processes, and not the knowledge itself (Gómez-Baggethun & Reyes-García, 2013; Guerrero Lara et al., 2019).

### 5.2 | Unpacking knowledge-place connections

The typology created (Table 3) maps knowledge-place connections beyond the assumed roles of actors as locals or authorities allowing for the diversity of different positions and adding to the plurality of ways to understand the sense of place (Raymond et al., 2021). Considered through local knowledge, different positions on a place can be seen as fluid and can change over time (Di Masso et al., 2019). They are not necessarily dependent on the origin of an actor. For example, growing up in the area did not necessarily lead to a feeling

of relating to local knowledge, and by contrast, some actors considered that they had gained local knowledge despite not being originally from the area. This highlights the dynamic nature of local knowledge being shaped in interaction with other knowledge (Tengö et al., 2017); for example, formed through lived experience in a place and more formal knowledge sources.

However, time also formed an indicator that was reflected in the feeling of belonging and having a right to present local knowledge, particularly in cases where a person was not originally from the area. The feelings of both belonging and unbelonging (Savage et al., 2005) are therefore also crucial for local knowledge processes. However, sometimes belonging through local knowledge is not even desirable for a person who wants to relate to place more through their official positions and related more formalised knowledge sources. The findings about knowledge–place connections further illustrate that there are plural epistemic ways to create a connection to a place (Castro, 2021), which is both a highly subjective and a social process that links to power dynamics.

### 5.2.1 | Interactions and expectations of expertise through place-belonging and local knowledge

Tensions in perceptions of who has relevant expertise and what kind of expertise should be utilised were evident in the knowledge interactions between actors stemming from different knowledge–place connections. These related to such matters as perceived credibility of local knowledge or questioning the legitimacy of knowledge of official actors based on one's own epistemic connections and belonging to the area gained through lived experience. Here, doubting the external expertise or implementation of decisions based on scientific knowledge was evident among some actors with a strong sense of belonging, if the knowledge and decision did not have strong associations with the place and the realities of local people, or conflicted with the actors' existing knowledge of the place. The question of saliency, credibility and legitimacy of knowledge (Cash et al., 2002) can thus be considered to be shaped and navigated by people–place bonds. Biocultural approaches, embracing the place-based cultural perspective such as values, knowledges and needs (Sterling et al., 2017), are therefore crucial for local policy and management in the World Heritage Site to build trust in knowledge processes which enhance the mutual perceptions of legitimate decision-making (Cash et al., 2003; Clark et al., 2016).

Noted in this study and in the previous literature (Svels, 2015) is a general negative attitude towards any state regulations on the Finnish side of the World Heritage Site, which affects the governance efforts. As discussed by Masterson et al. (2017), social experiences such as particular roles and the social expectations of these roles and power dynamics form a sense of place in addition to individual experience. The expectations of particular roles as 'locals' or 'state agencies' seemed to amplify the tensions in the case study. Local knowledge in Finland and Sweden was often sought from actors outside formal decision-making processes as long as it was

nature-based and fitted the scientific format, leaving a feeling that other forms of local expertise were overlooked, which highlights the political nature of knowledge processes (Turnhout, 2018). However, in turn, actors working in the management were perceived by some other actors in terms of their official roles and not necessarily as equally locals embedded in place. Knowledge they presented was interpreted through local knowledge. Consequently, the right or burden of being a local, or of belonging (Trudeau, 2006), was sometimes attributed to only a few people with origins in the area, who then perhaps were considered to be allowed to present and draw on their local knowledge. This perception of being a local and an epistemic dimension of the place connection was subjectively created by individuals and then reflected and amplified or condensed in the interaction with others.

The experiences of local knowledge and place-belonging can shape how and to what extent it becomes included in formal decision-making spheres. Is local knowledge reflected through active, even first hand, experiences? Is it derived from other (perhaps very few) actors who are considered to have relevant local knowledge? Or is it reduced to one aspect of an area—such as history or ecological knowledge—which may possibly ignore current issues and other knowledge contributions? Our findings show that all of these positions on local knowledge are possible in governance structures, which are therefore not homogeneous entities, manifesting just one type of expertise (O'Connor et al., 2021). Rather, they include a plurality of knowledge sources and expertise, and experiences of a place. Formulation of knowledge expertise with and through place-belonging also happens within expert bodies that include multiple attitudes towards local knowledge in interaction with other forms of knowledge. Understanding these differing views stemming from knowledge–place connections can thus increase understanding of why some meanings and knowledge are or are not presented and also emphasises the potential in exploring links between SES and sense of place research (Stedman, 2016).

It is likely that similar patterns of knowledge–place connections as mapped in the typology in this case study are repeated in different places and SES, which highlights the need for unpacking often stark divisions of actors and their knowledge into roles such as managers, experts, decision-makers or locals when the dynamics of SES are discussed in academia as well as in real-world collaborative governance processes (O'Connor et al., 2021). Here, the idea of knowledge systems and an expectation of local knowledge can even hinder seeing the multiple ways of knowing and considering the perceptions of various actors. The metaphor of a system implies closure and fixity (as discussed by Connell et al., 2016, p. 25) and, if treated rigidly, the idea of a local knowledge system per se may be reduced to only some aspects, which suits the agendas pursued, or alternatively, are co-opted exclusively by the groups with strong place-belonging and identities (Trudeau, 2006). Recognising relevant local expertise for SES is a key issue for their management (Davis & Wagner, 2003) and it is certainly noteworthy that not all knowledge claims should and can be counted as knowledge (Rydin, 2007). Epistemic dimensions of a place facilitate discussion of the competing claims relating to the

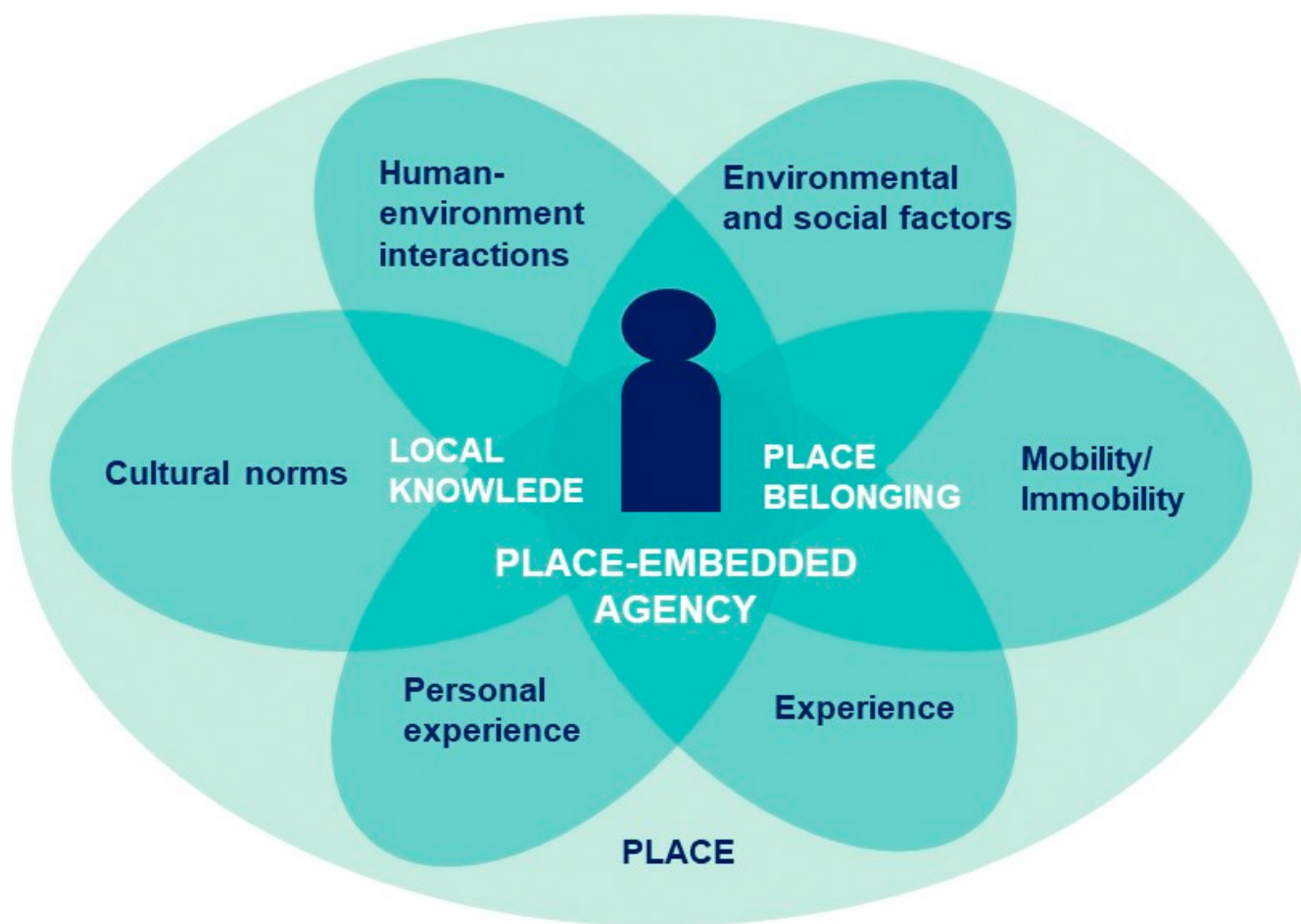
subjectivity of one's position and views regardless of their actor's roles.

### 5.3 | Towards place-embedded agency

As shown in this study, perceptions of local knowledge are informed by place-belonging, which enacted different forms of expertise and actor interactions. The existing knowledge of a place creates the means for interpretation of new knowledges and ideas in relation to the context (Castro, 2021; Hakkarainen et al., 2020), while different gradients of place-belonging shape the response of actors to a place through feelings and emotions (Escalera-Reyes, 2020). Agency culminating in knowledge interactions (Burkitt, 2016; Edwards, 2011) was influenced by place-belonging together with the epistemic interpretation of the requests for knowledge-based collaboration either matching or not matching the experienced realities and knowledge in a place. In this case study, claiming and expecting agency in local questions was channelised through place-belonging together with the epistemic dimension sometimes

manifested in, for example, strict views towards external influence and knowledge of the area.

An important question remains: 'How does one manage the connections between knowledge and place-belonging and the complex positions they create in environmental governance settings?' We propose the concept of place-embedded agency to highlight the implications of knowledge-place connections for the interactions and capacity of actors to act in a place (Figure 1). This offers a way to recognise the overlap between both place-belonging and local knowledge, highlighting the epistemic dimension of sense of place, which has implications for knowledge interactions. Theoretically, local knowledge can be seen to be shaped by contextual and personal factors such as human-environment interactions, cultural norms and an individual's experience (Raymond, Brown, & Weber, 2010; Raymond, Fazey, et al., 2010). Similar and overlapping aspects of social and environmental factors including biophysical features and experience (Raymond et al., 2017), as well as mobility and immobility and different shades thereof (Di Masso et al., 2019), determine place-belonging. This was also present in the empirical data where knowledge was discussed through connections to the environment,



**FIGURE 1** Place-embedded agency, situated at the intersections of local knowledge and place-belonging, shapes interactions and actions in a place.



place, people, time, and the cultural heritage and norms, and finally reflected through both personal experience of knowledge and the place. Local knowledge and belonging thus shape and re-shape each other.

The focus on place-embedded agency can help to identify the disparate views on who can present local knowledge and have a say about a place, and how local knowledge is, if at all, included in the management. This can be particularly relevant in transboundary governance contexts in which knowledge–place connections may vary because of national, political and cultural boundaries (Sternliebe, 2013), and in different ecosystem governance settings in general, in which inclusivity of views is encouraged to achieve socially just decision-making (Berbés-Blázquez et al., 2016). The concept of place-embedded agency can thus serve as a way of incorporating diverse individuals as embedded actors in SES dynamics through acknowledging and recognising the place connections and knowledge that create multiple positions, which are established in interaction with others. These positions may be shaped by but are not dependent on the official roles of actors such as being a manager.

In addition, the epistemic dimension actualises the agency in human interaction, of which, for example, unwillingness to participate in collaborative processes because of the perception of lack of suitable knowledge about the place or questioning external knowledge based on one's own experience exemplify. Place itself can be considered as creating agency and shaping people as often discussed within indigenous ontologies (Larsen & Johnson, 2016). As such, exploring place and the epistemic dimensions of a place in particular as a component of agency can contribute to understanding the different and often complex relational positions which are reflected in varying aspirations for an SES (Stedman et al., 2019) and hold the potential to transform relationships and foster the transformative agency of different actors (Frantzeskaki et al., 2018).

Ultimately, place-embedded agency facilitates exploration of the underlying question of whose knowledge counts in the governance of SES. Simply focusing on conflicts and dominant voices narrating a place provides a limited and narrow picture of the multiple positions, knowledge and interests in the World Heritage Site. Using the notion of place-embedded agency to highlight this plurality and the various opportunities for knowledge interactions can help to build constructive discussions that can lead to more sustainable and inclusive development of the area.

We concede that knowledge also needs to be more explicitly considered within the intertwined expressions of meanings, values and emotions to avoid technocratic perspectives and allow for diversity in ecosystem governance (Fazey et al., 2020; MacKinnon & Derickson, 2013). Knowledge is therefore only a partial entry point for unpacking the plurality in ecosystem governance, although focus on a place weaves knowledge into contested place meanings (Ingalls et al., 2019). Furthermore, we acknowledge that the typology of knowledge–place connections is an additional academic categorisation which frames understanding of diverse positions and different ways of knowing to a certain model. The concept of place-embedded

agency derived from the typology might not be applicable in cases where knowledge processes occur at more universal levels in which actors' connections to one shared place do not form the prominent context for knowledge-interactions such as international expert bodies (e.g. IPBES, Future Earth, IPCC). Ultimately, place-embedded agency is an academic opening within a place-based research tradition (Balvanera, Calderón-Contreras, et al., 2017; Balvanera, Daw, et al., 2017), further bridging the sense of place and knowledge processes literatures for unpacking the plurality and subjectivity that is emerging as a critical aspect in ecosystem governance (Caniglia et al., 2020; Manzo et al., 2021). It thus requires further application and particularly operationalisation in various places and processes of ecosystem governance.

## 6 | CONCLUSIONS

The importance of including diverse views and forms of knowledge in the management and governance of an ecosystem is increasingly acknowledged. The sense of place and place-based research have been recognised as a way to understand subjectivity, multiple meanings and agency in SES. In this study, we explore knowledge–place connections through perceptions of local knowledge and place-belonging, and show how the interrelated view can help to unpack agency in SES using the High Coast/Kvarken Archipelago UNESCO World Heritage site as an empirical case. This study sheds light on the epistemic dimension of a sense of place. We propose a concept of place-embedded agency to highlight the role of place in shaping interactions and actions between different actors together with the epistemic processes. We conclude that exploring place-embedded agency may provide a crucial pathway for managing environmental conflicts in ways that not only deal with different people–place connections but also different epistemic views.

Although our study context presents a transboundary governance case, further evidence and focus on how knowledge–place connections manifest themselves within various boundaries and influence governance of such places is needed. The increasing focus on movement, or fixities and flows, in the sense of place literature (Di Masso et al., 2019) also creates an interesting way to study knowledge–place connections and the epistemic dimension of sense of place. In future research, it is thus also necessary to pay attention to how mobility—or immobility—shapes the epistemic dimension of sense of place, and what it means to people's connections to place in today's increasingly connected societies. As shown in this study, place-belonging offers an additional component to unpacking agency, which could be a relevant approach to understand participant interactions and the ability to act in many contexts. The notion of place-embedded agency could be applicable, for example in recognising and identifying different actors and their positions in the processes of co-creation and production of knowledge in other places such as cities and non-protected areas and complex science–society–policy interfaces.

## AUTHORS' CONTRIBUTIONS

V.H. was in charge of designing the study, data collection, data analysis and interpretations, drafting the article. K.S., J.D. and C.M.R. contributed to the design of the study, interpretations of results and critical revisions of the manuscript.

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## CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

## DATA AVAILABILITY STATEMENT


The data used in the study are not made open with the decision of the authors and the project coordination of RECOMS MSCA-ITN. Interviews revealed sensitive and personal issues, which risks the privacy of the interviewees. Even if anonymised, due to the geographically small case study area and the focus on people working with World Heritage questions, interviewees could potentially be identified from the anonymised interviews.

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## REFERENCES

- Apetrei, C. I., Caniglia, G., Von Wehrden, H., & Lang, D. J. (2021). Just another buzzword? A systematic literature review of knowledge-related concepts in sustainability science. *Global Environmental Change*, 68, 102222. <https://doi.org/10.1016/j.gloenvcha.2021.102222>
- Arora-Jonsson, S. (2016). Does resilience have a culture? Ecocultures and the politics of knowledge production. *Ecological Economics*, 121(December), 98–107. <https://doi.org/10.1016/j.ecolecon.2015.11.020>
- Bailey, E., Devine-Wright, P., & Batel, S. (2016). Using a narrative approach to understand place attachments and responses to power line proposals: The importance of life-place trajectories. *Journal of Environmental Psychology*, 48, 200–211. <https://doi.org/10.1016/j.jenvp.2016.10.006>
- Ballard, H. L., Fernandez-Gimenez, M. E., & Sturtevant, V. E. (2008). Integration of local ecological knowledge and conventional science: A study of seven community-based forestry organizations in the USA. *Ecology and Society*, 13(2). <https://doi.org/10.5751/ES-02594-130237>
- Balvanera, P., Calderón-Contreras, R., Castro, A. J., Felipe-Lucia, M. R., Geijzendorffer, I. R., Jacobs, S., Martín-López, B., et al. (2017). Interconnected place-based social-ecological research can inform global sustainability. *Current Opinion in Environmental Sustainability*, 29, 1–7. <https://doi.org/10.1016/j.cosust.2017.09.005>
- Balvanera, P., Daw, T. M., Gardner, T. A., Martín-López, B., Norström, A. V., Speranza, C. I., Spierenburg, M., et al. (2017). Key features for more successful place-based sustainability research on social-ecological systems: A programme on ecosystem change and society (PECS) perspective. *Ecology and Society*, 22(1). <https://doi.org/10.5751/ES-08826-220114>
- Berbés-Blázquez, M., González, J. A., & Pascual, U. (2016). Towards an ecosystem services approach that addresses social power relations. *Current Opinion in Environmental Sustainability*, 19, 134–143. <https://doi.org/10.1016/j.cosust.2016.02.003>
- Berkes, F. (2008). *Sacred ecology* (2nd ed.). Routledge.
- Berkes, F. (2009). Indigenous ways of knowing and the study of environmental change. *Journal of the Royal Society of New Zealand*, 39(4), 151–156. <https://doi.org/10.1080/03014220909510568>
- Berkes, F., Colding, J., & Folke, C. (2003). *Navigating social-ecological systems: Building resilience for complexity and change*. Cambridge University. <https://doi.org/10.1016/j.biocon.2004.01.010>
- Bernard, H. R. (2006). *Research methods in anthropology: qualitative and quantitative approaches* (4th ed.). AltaMira Press.
- Blowers, A., Boersema, J., & Martin, A. (2005). Experts, decision making and deliberative democracy. *Environmental Sciences*, 2(1), 1–3. <https://doi.org/10.1080/15693430500111793>
- Boonstra, W. J. (2016). Conceptualizing power to study social-ecological interactions. *Ecology and Society*, 21(1), 21. <https://doi.org/10.5751/ES-07966-210121>
- Burkitt, I. (2016). Relational Agency: Relational Sociology. *Agency and Interaction*, 19(3), 322–339. <https://doi.org/10.1177/1368431015591426>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp0630a>
- Caniglia, G., Luederitz, C., von Wirth, T., Fazey, I., Martín-López, B., Hondrita, K., König, A., von Wehrden, H., Schäpke, N. A., Laubichler, M. D., & Lang, D. J. (2020). A pluralistic and integrated approach to action-oriented knowledge for sustainability. *Nature Sustainability*, 4, 93–100. <https://doi.org/10.1038/s41893-020-00616-z>
- Cash, D., Clark, W. C., Alcock, F., Dickson, N. M., Eckley, N., & Jäger, J. (2002). Salience, credibility, legitimacy and boundaries: Linking research, assessment and decision making. <https://ssrn.com/abstract=372280> or <https://doi.org/10.2139/ssrn.372280>
- Cash, D. W., Clark, W. C., Alcock, F., Dickson, N. M., Eckley, N., Guston, D. H., Jäger, J., & Mitchell, R. B. (2003). Knowledge systems for sustainable development. *Proceedings of the National Academy of Sciences of the United States of America*, 100(14), 8086–8091. <https://doi.org/10.1063/1.4795010>
- Castleberry, A., & Nolen, A. (2018). Thematic analysis of qualitative research data: Is it as easy as it sounds? *Currents in Pharmacy Teaching and Learning*, 10(6), 807–815. <https://doi.org/10.1016/j.cptl.2018.03.019>
- Castro, P. (2021). A dynamic view of local knowledge and epistemic bonds to place: Implications for senses of place and the governance of biodiversity conservation, A Dynamic View of Local Knowledge and Epistemic Bonds to Place. In *Changing senses of place: Navigating global challenges*. Cambridge University Press.
- Chapin, F. S., & Knapp, C. N. (2015). Sense of place: A process for identifying and negotiating potentially contested visions of sustainability. *Environmental Science and Policy*, 53, 38–46. <https://doi.org/10.1016/j.envsci.2015.04.012>
- Clark, W. C., van Kerkhoff, L., Lebel, L., & Gallopin, G. C. (2016). Crafting usable knowledge for sustainable development. *Proceedings of the National Academy of Sciences of the United States of America*, 113(17), 4570–4578. <https://doi.org/10.1073/pnas.1601266113>

- Cockburn, J., Cundill, G., Shackleton, S., & Rouget, M. (2018). Towards place-based research to support social-ecological stewardship. *Sustainability*, 10, 1434. <https://doi.org/10.3390/su10051434>
- Cote, M., & Nightingale, A. J. (2012). Resilience thinking meets social theory: Situating social change in socio-ecological systems (SES) research. *Progress in Human Geography*, 36(4), 475–489. <https://doi.org/10.1177/0309132511425708>
- Creswell, T. (2004). *Place: A short introduction*. Blackwell Publishing Ltd.
- Davis, A., & Wagner, J. R. (2003). Who knows? On the importance of identifying 'experts' when researching local ecological knowledge. *Human Ecology*, 31(3), 463–489. <https://doi.org/10.1023/A:1025075923297>
- Di Masso, A., Williams, D. R., Raymond, C. M., Buchecker, M., Degenhardt, B., Devine-Wright, P., Hertzog, A., et al. (2019). Between fixities and flows: Navigating place attachments in an increasingly mobile world. *Journal of Environmental Psychology*, 61(January), 125–133. <https://doi.org/10.1016/j.jenvp.2019.01.006>
- Easthope, H. (2009). Fixed identities in a mobile world? The relationship between mobility, place, and identity. *Identities*, 16(1), 61–82. <https://doi.org/10.1080/10702890802605810>
- Edwards, A. (2011). Building common knowledge at the boundaries between professional practices: Relational agency and relational expertise in systems of distributed expertise. *International Journal of Educational Research*, 50(1), 33–39. <https://doi.org/10.1016/j.ijer.2011.04.007>
- Elands, B. H. M., Freerk Wiersum, K., Buijs, A. E., & Vierikko, K. (2015). Policy interpretations and manifestation of biocultural diversity in urbanized Europe: conservation of lived biodiversity. *Biodiversity and Conservation*, 24(13), 3347–3366. <https://doi.org/10.1007/s10531-015-0985-6>
- Escalera-Reyes, J. (2020). Place Attachment, Feeling of Belonging and Collective Identity in Socio-Ecological Systems: Study Case of Pegalajar (Andalusia-Spain). *Sustainability (Switzerland)*, 12(8), 1–22. <https://doi.org/10.3390/SU12083388>
- Fazey, I., Schäpke, N., Caniglia, G., Hodgson, A., Kendrick, I., Lyon, C., Page, G., Patterson, J., Riedy, C., Strasser, T., Verveen, S., Adams, D., Goldstein, B., Klaes, M., Leicester, G., Linyard, A., McCurdy, A., Ryan, P., Sharpe, B., ... Young, H. R. (2020). Transforming knowledge systems for life on earth: Visions of future systems and how to get there. *Energy Research & Social Science*, 70, 101724. <https://doi.org/10.1016/j.erss.2020.101724>
- Gómez-Baggethun, E., & Reyes-García, V. (2013). Reinterpreting change in traditional ecological knowledge. *Human Ecology*, 41(4), 643–647. <https://doi.org/10.1007/s10745-013-9577-9>
- Griffin, D., Shaw, P., & Stacey, R. (1999). Knowing and acting in conditions of uncertainty: A complexity perspective. *Systemic Practice and Action Research*, 12(3), 295–309. <https://doi.org/10.1023/A:1022403802302>
- Hakkarainen, V., Anderson, C. B., Eriksson, M., van Riper, C. J., Horcea-Milcu, A., & Raymond, C. M. (2020). Grounding IPBES experts' views on the multiple values of nature in epistemology, knowledge and collaborative science. *Environmental Science and Policy*, 105(November 2019), 11–18. <https://doi.org/10.1016/j.envsci.2019.12.003>
- Hernández Bernardo, B., Martín, A. M., Ruiz, C., & del Carmen Hidalgo, M. (2010). The role of place identity and place attachment in breaking environmental protection laws. *Journal of Environmental Psychology*, 30(3), 281–288. <https://doi.org/10.1016/j.jenvp.2010.01.009>
- Ingalls, M. L., Kohout, A., & Stedman, R. C. (2019). When places collide: Power, conflict and meaning at Malheur. *Sustainability Science*, 14(3), 625–638. <https://doi.org/10.1007/s11625-019-00689-6>
- Ingalls, M. L., & Stedman, R. C. (2016). The power problematic: Exploring the uncertain terrains of political ecology and the resilience framework. *Ecology and Society*, 21(1). <https://doi.org/10.5751/ES-08124-210106>
- Lara, L. G., Pereira, L. M., Ravera, F., & Jiménez-Aceituno, A. (2019). Flipping the tortilla: Social-ecological innovations and traditional ecological knowledge for more sustainable agri-food systems in Spain. *Sustainability (Switzerland)*, 11(5). <https://doi.org/10.3390/su11051222>
- Lewicka, M. (2011). Place attachment: How far have we come in the last 40 years? *Journal of Environmental Psychology*, 31(3), 207–230. <https://doi.org/10.1016/j.jenvp.2010.10.001>
- Lowe, P., Phillipson, J., Proctor, A., & Gkartzios, M. (2019). Expertise in rural development: A conceptual and empirical analysis. *World Development*, 116, 28–37. <https://doi.org/10.1016/j.worlddev.2018.12.005>
- MacKinnon, D., & Derickson, K. D. (2013). From resilience to resourcefulness: A critique of resilience policy and activism. *Progress in Human Geography*, 37(2), 253–270. <https://doi.org/10.1177/0309132512454775>
- Manzo, L. C., & Pinto de Carvalho, L. (2021). The role of qualitative approaches to place attachment. In L. C. Manzo & P. Devine-wright (Eds.), *Place attachment: Advances in theory, methods and applications* (2nd ed., pp. 111–126). Routledge.
- Manzo, L. C., Williams, D. R., Raymond, C. M., Di Masso, A., von Wirth, T., & Devine-Wright, P. (2021). Navigating the spaciousness of uncertainties posed by global challenges: A senses of place perspective [Chapter 25]. In C. M. Raymond, L. C. Manzo, D. R. Williams, A. Di Masso, & T. von Wirth (Eds.), *Changing senses of place: Navigating global challenges* (pp. 331–347). Cambridge University Press. <http://www.cambridge.org/9781108477260>
- Masterson, V. A., Enqvist, J. P., Stedman, R. C., & Tengö, M. (2019). Sense of place in social-ecological systems: From theory to empirics. *Sustainability Science*, 14(3), 555–564. <https://doi.org/10.1007/s11625-019-00695-8>
- Masterson, V. A., Spierenburg, M., & Tengö, M. (2019). The trade-offs of win-win conservation rhetoric: Exploring place meanings in community conservation on the wild coast, South Africa. *Sustainability Science*, 14(3), 639–654. <https://doi.org/10.1007/s11625-019-00696-7>
- Masterson, V. A., Stedman, R. C., Enqvist, J., Tengö, M., Giusti, M., Wahl, D., & Svedin, U. (2017). The contribution of sense of place to social-ecological systems research: A review and research agenda. *Ecology and Society*, 22(1). <https://doi.org/10.5751/ES-08872-220149>
- McCreanor, T., Penney, L., Jensen, V., Witten, K., Kearns, R., & Barnes, H. M. (2006). 'This is like my comfort zone': Senses of place and belonging within Oruamo/Beachhaven, New Zealand. *New Zealand Geographer*, 62(3), 196–207. <https://doi.org/10.1111/j.1745-7939.2006.00070.x>
- Merçon, J., Vetter, S., Tengö, M., Cocks, M., Balvanera, P., Rosell, J. A., & Ayala-Orozco, B. (2019). From local landscapes to international policy: Contributions of the biocultural paradigm to global sustainability. *Global Sustainability*, 2. <https://doi.org/10.1017/sus.2019.4>
- Nazarea, V. D. (2006). Local knowledge and memory in biodiversity conservation. *Annual Review of Anthropology*, 35, 317–335. <https://doi.org/10.1146/annurev.anthro.35.081705.123252>
- Norström, A. V., Cvitanovic, C., Löf, M. F., West, S., Wyborn, C., Balvanera, P., Bednarek, A. T., Bennett, E. M., Biggs, R., de Bremond, A., Campbell, B. M., Canadell, J. G., Carpenter, S. R., Folke, C., Fulton, E. A., Gaffney, O., Gelcich, S., Jouffray, J.-B., Leach, M., ... Österblom, H. (2020). Principles for knowledge co-production in sustainability research. *Nature Sustainability*, 9, 182–190. <https://doi.org/10.1038/s41893-019-0448-2>
- O'Connor, R. A., Nel, J. L., Roux, D. J., Leach, J., Lim-Camacho, L., Medvecky, F., van Kerkhoff, L., & Raman, S. (2021). The role of environmental managers in knowledge co-production: Insights from two case studies. *Environmental Science and Policy*, 116(December 2020), 188–195. <https://doi.org/10.1016/j.envsci.2020.12.001>
- Olsson, P., & Folke, C. (2001). Local ecological knowledge and institutional dynamics for ecosystem management: A study of Lake

- Racken Watershed, Sweden. *Ecosystems*, 4(2), 85–104. <https://doi.org/10.1007/s100210000061>
- Pilgrim, S. E., Cullen, L. C., Smith, D. J., & Pretty, J. (2008). Ecological knowledge is lost in wealthier communities and countries. *Environmental Science and Technology*, 42(4), 1004–1009. <https://doi.org/10.1021/es070837v>
- Pollini, G. (2005). Elements of a theory of place attachment and socio-territorial belonging. *International Review of Sociology*, 15(3), 497–515. <https://doi.org/10.1080/03906700500272483>
- Pretty, J. (2011). Interdisciplinary progress in approaches to address social-ecological and ecocultural systems. *Environmental Conservation*, 38(2), 127–139. <https://doi.org/10.1017/S0376892910000937>
- Raffaetà, R., & Duff, C. (2013). Putting belonging into place: Place experience and sense of belonging among Ecuadorian migrants in an Italian alpine region. *City and Society*, 25(3), 328–347. <https://doi.org/10.1111/ciso.12025>
- Ralph, D., & Staeheli, L. A. (2011). Home and migration: Mobilities, belongings and identities. *Geography Compass*, 5(7), 517–530. <https://doi.org/10.1111/j.1749-8198.2011.00434.x>
- Rathwell, K. J., Armitage, D., & Berkes, F. (2015). Bridging knowledge systems to enhance governance of the environmental commons: A typology of settings. *International Journal of the Commons*, 9(2), 851–880. <https://doi.org/10.18352/ijc.584>
- Raymond, C. M., Brown, G., & Weber, D. (2010). The measurement of place attachment: personal, community, and environmental connections. *Journal of Environmental Psychology*, 30(4), 422–434. <https://doi.org/10.1016/j.jenvp.2010.08.002>
- Raymond, C. M., Fazey, I., Reed, M. S., Stringer, L. C., Robinson, G. M., & Evelyn, A. C. (2010). Integrating local and scientific knowledge for environmental management. *Journal of Environmental Management*, 91(8), 1766–1777. <https://doi.org/10.1016/j.jenvm.2010.03.023>
- Raymond, C. M., Kyttä, M., & Stedman, R. (2017). Sense of place, fast and slow: The potential contributions of affordance theory to sense of place. *Frontiers in Psychology*, 8(SEP). <https://doi.org/10.3389/fpsyg.2017.01674>
- Raymond, C. M., Manzo, L. C., Williams, D. R., & Di Masso, A. (2021). In C. M. Raymond, L. C. Manzo, D. R. Williams, & A. Di Masso (Eds.), *Changing Senses of Place: Navigating Global Challenges*. Cambridge University Press.
- Relf, E. (1976). *Place and placelessness*. Pion.
- Rydin, Y. (2007). Re-examining the role of knowledge within planning theory. *Planning Theory*, 6(1), 52–68. <https://doi.org/10.1177/1473095207075161>
- Saar, M., & Palang, H. (2009). The dimensions of place meanings. *Living Reviews in Landscape Research*, 3, 1–24. <https://doi.org/10.12942/lrlr-2009-3>
- Savage, M., Bagnall, G., & Longhurst, B. (2005). *Globalization and belonging*. Sage.
- Seamon, D. (2018). *Life takes place: Phenomenology, lifeworlds and place making*. Routledge.
- Simpson, H., de Loë, R., & Andrey, J. (2015). Vernacular knowledge and water management - towards the integration of expert science and local knowledge in Ontario, Canada. *Water Alternatives*, 8(3), 352–372.
- Sjölander-Lindqvist, A. (2008). Local identity, science and politics indivisible: The Swedish Wolf Controversy Deconstructed. *Journal of Environmental Policy and Planning*, 10(1), 71–94. <https://doi.org/10.1080/15239080701652672>
- Stedman, R. C. (2016). Subjectivity and social-ecological systems: A rigidity trap (and sense of place as a way out). *Sustainability Science*, 11(6), 891–901. <https://doi.org/10.1007/s11625-016-0388-y>
- Stepanova, O., Polk, M., & Saldert, H. (2020). Understanding mechanisms of conflict resolution beyond collaboration: An interdisciplinary typology of knowledge types and their integration in practice. *Sustainability Science*, 15, 263–279. <https://doi.org/10.1007/s11625-019-00690-z>
- Sterling, E. J., Filardi, C., Toomey, A., Sigouin, A., Betley, E., Gazit, N., Newell, J., Albert, S., Alvira, D., Bergamini, N., Blair, M., Boseto, D., Burrows, K., Bynum, N., Caillon, S., Caselle, J. E., Claudet, J., Cullman, G., Dacks, R., ... Jupiter, S. D. (2017). Biocultural approaches to well-being and sustainability indicators across scales. *Nature Ecology and Evolution*, 1(12), 1798–1806. <https://doi.org/10.1038/s41559-017-0349-6>
- Stone-Jovicich, S. (2015). Probing the interfaces between the social sciences and social-ecological resilience. *Ecology and Society*, 20(2), 25. <https://doi.org/10.5751/ES-07347-200225>
- Svels, K. (2015). World heritage, tourism and community involvement: A comparative study of the high coast (Sweden) and Kvarken Archipelago (Finland). *Scandinavian Journal of Hospitality and Tourism*, 15(1–2), 183–201. <https://doi.org/10.1080/1502250.2015.1009708>
- Svels, K. (2017). *World heritage governance and tourism development: A study of public participation and contested ambitions in the world heritage Kvarken Archipelago* (Dissertation). Åbo Akademi University. [http://bibbild.abo.fi/ediss/2017/svels\\_kristina.pdf](http://bibbild.abo.fi/ediss/2017/svels_kristina.pdf)
- Taylor, B., & de Loë, R. C. (2012). Conceptualizations of local knowledge in collaborative environmental governance. *Geoforum*, 43(6), 1207–1217. <https://doi.org/10.1016/j.geoforum.2012.03.007>
- Tengö, M., Brondizio, E. S., Elmqvist, T., Malmer, P., & Spierenburg, M. (2014). Connecting diverse knowledge systems for enhanced ecosystem governance: The multiple evidence base approach. *Ambio*, 43(5), 579–591. <https://doi.org/10.1007/s13280-014-0501-3>
- Tengö, M., Hill, R., Malmer, P., Raymond, C. M., Spierenburg, M., Danielsen, F., Elmqvist, T., & Folke, C. (2017). Weaving knowledge systems in IPBES, CBD and beyond—Lessons learned for sustainability. *Current Opinion in Environmental Sustainability*, 26–27, 17–25. <https://doi.org/10.1016/j.cosust.2016.12.005>
- Timmermans, S., & Tavory, I. (2012). Theory construction in qualitative research: From grounded theory to abductive analysis. *Sociological Theory*, 30(3), 167–186. <https://doi.org/10.1177/0735275112457914>
- Tomaney, J. (2015). Region and place II: belonging. *Progress in Human Geography*, 39(4), 507–516. <https://doi.org/10.1177/0309132514539210>
- Trudeau, D. (2006). Politics of belonging in the construction of landscapes: place-making, boundary-drawing and exclusion. *Cultural Geographies*, 13(3), 421–443. <https://doi.org/10.1191/1474474006eu3660a>
- Turnhout, E. (2018). The politics of environmental knowledge. *Conservation and Society*, 16(3), 363–371. <https://doi.org/10.4103/cs.cs>
- Turnhout, E., Metze, T., Wyborn, C., Klenk, N., & Louder, E. (2020). The politics of co-production: participation, power, and transformation. *Current Opinion in Environmental Sustainability*, 42(2018), 15–21. <https://doi.org/10.1016/j.cosust.2019.11.009>
- van der Molen, F. (2018). How knowledge enables governance: The co-production of environmental governance capacity. *Environmental Science and Policy*, 87(November 2017), 18–25. <https://doi.org/10.1016/j.envsci.2018.05.016>
- van Kerkhoff, L., & Pilbeam, V. (2017). Understanding socio-cultural dimensions of environmental decision-making: A knowledge governance approach. *Environmental Science and Policy*, 73(September 2016), 29–37. <https://doi.org/10.1016/j.envsci.2017.03.011>
- Varghese, J., & Crawford, S. S. (2020). A cultural framework for indigenous, local, and science knowledge systems in ecology and natural resource management. *Ecological Monographs*, 91(1), 1–23. <https://doi.org/10.1002/ecm.1431>
- West, S., Jamila Haider, L., Stålhammar, S., & Woroniecki, S. (2020). A relational turn for sustainability science? Relational thinking, leverage



- points and transformations. *Ecosystems and People*, 16(1), 304–325. <https://doi.org/10.1080/26395916.2020.1814417>
- West, S., van Kerkhoff, L., & Wagenaar, H. (2019). Beyond “linking knowledge and action”: Towards a practice-based approach to transdisciplinary sustainability interventions. *Policy Studies*, 40(5), 534–555. <https://doi.org/10.1080/01442872.2019.1618810>
- Williams, D. R., & Miller, A. B. (2021). Metatheoretical moments in place attachment research: Seeking clarity in diversity. In L. C. Manzo & P. Devine-wright (Eds.), *Place attachment: Advances in theory, methods and applications* (2nd ed., pp. 13–28). Routledge.
- Wyborn, C., Montana, J., Kalas, N., Clement, S., Davila Cisneros, F., Knowles, N., Louder, E., et al. (2020). An agenda for research and action towards diverse and just futures for life on earth. *Conservation Biology*, 35, 1086–1097. <https://doi.org/10.1111/cobi.13671>
- Yin, R. (2014). *Case study research: design and methods* (5th ed.). Sage.

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