4. Environmental heritage for sustainability

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INTRODUCTION

Communal legacies from two sources – the natural environment and the creations of human cultures – are often discussed and managed quite differently (e.g., Lowenthal, 2005). While natural heritage is usually something tangible (e.g., Dorfman, 2012), cultural heritage can refer to material culture, such as objects of art and daily use, architecture, and landscape form, or to intangible culture, including performances of dance, music, theatre, and ritual, as well as language and human memory. The 1972 World Heritage Convention links together nature conservation and the preservation of cultural properties (United Nations Educational, Scientific and Cultural Organization, 2019), and so does the European Landscape Convention (see, e.g., Oksanen & Kumpula, 2017); but in general, there are only a few practical instances where cultural and natural heritage actually meet, especially at the policy level (see Harrison, 2013; Olwig & Lowenthal, 2013).

There are only a few practical instances where cultural and natural heritage actually meet, especially at the policy level (see Harrison, 2013; Olwig & Lowenthal, 2013). Moreover, in research, the two domains are approached from siloed perspectives. Nature and natural heritage are often addressed in terms of engineering and management, whereas cultural heritage is treated as an isolated structure (cf. Hein et al., 2019). There are, however, interlinkages between the two domains, and in times of major environmental change, treating them in connection with each other can be of great advantage. The concept of *environmental heritage* can help to connect the two realms of heritage and facilitate better coordination and cooperation between the cultural and the natural, both in theory and in practice. Environmental heritage, in our coinage, is formed by living with nature, that is, in close connection with the material

world, including tangible changes that people experience in their surroundings (see Jetoo & Kouri, 2021; Kouri & Jetoo, Chapter 7 in this volume). We argue that environmental heritage enables us to overcome binaries related to environmental changes and knowledge about them, including tangible–intangible, official–unofficial, oral–literary, lay–expert, and local–global.

Currently, the protection of the world's cultural and natural heritage is an essential part of the overarching mandate of the United Nations to foster sustainable development (United Nations Educational, Scientific and Cultural Organization, 2019). Accordingly, we argue that the concept of heritage embodies significant political weight but is theoretically underdeveloped. The concept of environmental heritage can be used to combine the ecological, economic, social, and cultural dimensions, which in sustainability discourse are often seen as having contradicting goals. Furthermore, the concept pays particular attention to the time dimension with a specific note on historical processes, also extending forward to the future. This aspect of heritage is particularly relevant for sustainable development, drawing on the original definition by the Brundtland Report that highlights the cross-generational dimension and the three pillars (environmental, economic, and social) of sustainability: 'Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (United Nations World Commission on Environment and Development, 1987). Later, culture was added as a fourth pillar, or was even seen as having a more fundamental role – culture as sustainable development – as the essential foundation for sustainable development, integrating, coordinating and guiding all aspects of sustainable action (see, e.g., Dessein et al., 2015).

This chapter elaborates the concept of environmental heritage to serve as a bridge between the separate realms of natural and cultural heritage and assesses its potential to foster sustainable development in both research and practice. In the context of the current volume, it illustrates a case where interdisciplinary effort is key; combining the two realms in practice implies cooperation of experts on both natural and cultural heritage. The chapter has also been written in an interdisciplinary manner, approaching the topic from a variety of disciplinary angles, including history, ethnography, study of religions and environmental sociology. It leans on qualitative methods and is case study-oriented, implying interviews and participatory observation, even autoethnography, but also various literary sources and media materials. Geographically, the research focuses on the northern shores of the Baltic Sea and knowledge related to the marine environment.

To support the conceptual elaboration, we use three examples from our research focusing on the production of environmental knowledge and agency.[2] A more empirical enquiry of the concept, based on our environmental heritage

research project, has previously been published by Jetoo and Kouri (2021) and serves as a reference point for the discussion in this chapter.

The chapter proceeds as follows: in the first part of the chapter, the concept of heritage is discussed from both cultural and natural perspectives. Further, the concept of environmental heritage is explored. In the second part of the chapter, various aspects of environmental heritage are illustrated with three examples from empirical research. Finally, the chapter concludes with a discussion on how the concept of environmental heritage can be used to support sustainability and to enhance local agency, both in research and practice.

ENVIRONMENTAL HERITAGE: CONNECTING SCALES AND DISTINCTIONS

Overcoming the Cultural vs Natural

Cultural heritage can refer to material culture, such as paintings, drawings and sculptures, or intangible culture, including performances of dance, music, theatre, and ritual, as well as language and human memory. The concept combines tangible physical values with intangible aesthetic, spiritual and social values of heritage for the present and even for the future (e.g., Blake, 2000; Silverman & Ruggles, 2007). Natural objects, in turn, are usually designated as natural heritage. Traditionally, natural heritage has been categorised in terms of tangible heritage, but recently intangible natural heritage has also emerged as an important subject of inquiry, denoting the untouchable elements of the environment that create natural objects and help define our relationship to them – auditory landscapes or processes such as natural selection, for instance (see Dorfman, 2012).

With the concept of environmental heritage, we want to connect these two distinct domains.[3] Environmental heritage amalgamates not only the cultural and natural, and/or tangible and intangible, in the same understanding of heritage but also pinpoints the different scales attributed to heritage. Here, our definition of environmental heritage differs from its more common usage either as a synonym for natural heritage (in the context of conservation and definition of heritage sites and different cultures as well as landscapes, e.g., Lorusso et al., 2016) or as referring to the negative, irreversible impact of human activity on nature, such as environmental problems originating from destructive and large-scale industrial and agricultural activities in the Soviet Union (e.g., Libert, 1995).

In definitions of heritage, the distinction has often been made between authorised (official) and popular (unofficial) heritage. Whilst the former contains the cultural features that are acknowledged by the whole community and protected by administrative arrangements, whether international or local, the

latter signifies the heritage that lacks official recognition and has meaning only in limited and often private settings (e.g., Smith, 2011). Environmental heritage mostly falls into the category of 'heritage from below' (e.g., Robertson, 2012) since it deals with how people create their histories and heritage by living in a particular environment and time and how they voice arguments and views that might be excluded from official heritage discourses (see Smith, 2006).

An alternative, or complementary, way of fabricating the concept of environmental heritage is to consider the level of agency at which the heritage process is taking place. An object or phenomenon can be an element of heritage for a certain individual, community, or state, for instance. Each of these levels has a specific heritage discourse, a way that heritage is understood, discussed, and treated (Konsa, 2016). At the individual level, the concept of environmental heritage, in our coinage, refers to the process of acquiring experience, knowledge and skills that are constructed by living and acting in a particular environment at a particular point of time (Jetoo & Kouri, 2021). Making sense of these processes implies sustained analytical attention to knowledge as communication and also includes non-human actors. This communication is reciprocal intra-action, which signifies that the entangled agencies have mutual constitutions and that agencies do in fact emerge through their intra-actions, rather than preceding them (Barad, 2007). The concept emphasises the importance of 'knowing with' and 'knowing how', complementary to 'knowing that' (see Polanyi, 1966; Polanyi & Prosch, 1975), including skills that are difficult to put into words. Such heritage connects global environmental changes with local changes, since it is constructed in connection with tangible changes in nature, including the prevalence of extreme climatic phenomena, changes in flora and fauna and seasonal change.

The construction of environmental heritage is a material-discursive process (cf. Barad, 2007; Jetoo & Kouri, 2021). In environmental heritage, the different ways of knowing are interconnected and embodied. The concept thus provides a tool to overcome the conventional dichotomy between naturally given and culturally constructed worlds, ultimately, the human–nature bifurcation (see Kaaronen, 2018). Compared to many other frameworks emphasising these kinds of situated knowledge (e.g., Corburn, 2003; Folke, 2004; Haraway, 1988), the concept of heritage has the advantage that it extends from history forward to the future: heritage is an evolving view from the present both backward to the past and forward to a future (cf. Graham et al., 2000).

At the community level, from local to international communities, heritage construction is a collaborative, dialogical and interactive process (see Harrison, 2015). The communities creating unofficial heritage do not necessarily consider their habits as heritage, but merely as well-tried strategies, for example, to acquire livelihood and construct social cohesion. Yet these practices display attitudes and values towards the environment from the past that

link their practitioners to present-day global changes. Power to authorise the heritage discourse is inherently present in the heritage process at these levels, as power relations determine the institutions and experts who have 'the right to speak' on behalf of heritage (Smith, 2006, p. 12).

Environmental Heritage, Sustainable Development, and Sustainability

Sustainable development and sustainability are contested concepts similarly to concepts like democracy, truth, and justice (Jacobs, 1991). As such, discussion about the definitions of the concepts themselves can be considered an essential part of the practical process towards sustainability. While the debate about the meanings and differences of sustainable development and sustainability goes on, in this chapter we lean on the idea that sustainable development can be seen as a process to achieve sustainability (Hector et al., 2014) as a final long-term goal (Marchese et al., 2018).

In the contemporary discussion about sustainable development and sustainability, the scientific community often has the ultimate 'right to speak'; scientific knowledge has high authority and significant power. Research on sustainability increasingly admits that scientific rationality needs to be complemented with experience-based knowledge of varying socio-cultural settings and that local, traditional, and indigenous ways of knowing may serve as useful instruments for connecting with 'on-the-ground' political constituencies (e.g., Martello & Jasanoff, 2004; Raymond et al., 2010). In our reading, the concept of environmental heritage is linked to non-scientific, non-disciplinary, and non-expert – the more on-the-ground – ways of knowing that, alongside scientific knowledge, are relevant for both discourse and practice of sustainable development.

Advocating the concept of biocultural heritage, which is close to our definition of the environmental heritage, Alexandria K. Poole (2018) suggests that the recognition and affirmation of biocultural heritage could even be added as an additional UN Sustainable Development Goal (goal number 18), because it would help to maintain sustainable practices, values and lifestyle habits and emphasise the need to protect local ecological knowledge. The concept of biocultural heritage was coined in 2005 by the International Institute for Environment and Development (IIED) and emerged through work with indigenous peoples. It is increasingly being argued that biocultural heritage is a matter for all societies and must be pursued in urban contexts as well as rural ones (Russell, 2021). Poole (2018) defines biocultural heritage as referring to local communities' knowledge and capacity to maintain their communities in sustainable ways. Advocates of the concept of biocultural heritage argue that biocultural heritage should be explicitly articulated as a key component of any

sustainability agenda (e.g., Andersson et al., 2015; Gavin et al., 2015; Maffi, 2001; Maffi & Woodley, 2012).

Our reading of environmental heritage has many common elements with biocultural heritage, including the focus on the coexistence of human communities and their local environments, equal participation in decision-making of those affected, as well as the co-production of sustainable heritage informed by the past, helping us prepare for the future (e.g., Maffi, 2001; Russell, 2021). Still, it differs from biocultural heritage in that it puts heavy emphasis on the environment as a lived and historically constructed entanglement of humans and nature. Further, our reading of environmental heritage emphasises different types of knowledge – and their combinations – that play a role in the heritage process as well as in the outcomes of that process. Environmental heritage can potentially help to make sense of different and sometimes conflicting understandings of the environment and resources that various actors and stakeholders may have, because it encompasses the non-verbal, tacit, and materially based experience and knowledge that these understandings embody.

This approach draws on the idea that heritage is a dynamic construct: people in the present are not passive receivers or transmitters of heritage but active producers of it (see Frykman & Gilje, 2003). Heritage thus provides an active social and political arena for the creation of new ideas and concepts and the promotion of critical discussions. In heritage processes, individuals and communities may be in competition or in outright conflict. At stake is therefore the question of who defines heritage and who should control its stewardship and also its benefits (Silverman & Ruggles, 2007). Thus, the potential for conflict, but also for agency, lies in the fact that all heritage is dissonant and controversial; what is valued by one community may be devalued or valued for different reasons by another (Ashworth & Turnbridge, 1996). Not everything from the past is considered heritage (e.g., Renes, 2018), but the recognition of what is considered valuable heritage is a process of selection, and hence is unavoidably political. Accordingly, the recognition of environmental heritage does not automatically lead to sustainable lifestyles and practices; rather, there are also harmful ways of using nature that can be linked to such environmental heritage (cf. McCarthy, 2017; Russell, 2021; Siivonen, 2018).

The challenge, then, is how to distinguish between sustainable and unsustainable elements of environmental heritage and how to support such heritage and agency that does not produce and reproduce 'non-knowledge' related to the environment and sustainability (cf. Hourdequin, 2019). In the following, three examples to discuss the concept of environmental heritage and its potential (and potential challenges) for promoting sustainable ways of knowing and acting are introduced. The examples draw on empirical research we have conducted on environmental knowledge, heritage, and agency in our research project. The first example aims to illustrate what could be considered envi-

ronmental heritage and how it reaches over cultural and natural domains and from the past to the future at the individual and community levels. The second example, in turn, demonstrates how environmental heritage at the local level becomes contested at the policy level and how the superiority of scientific knowledge in defining what is sustainable may erode overall sustainability and heritage. The third example introduces a case in which environmental heritage is used to complement scientific knowledge, on the one hand, but also pinpoints that not all heritage is equally valid for the promotion of sustainability.

HERITAGE FOR SUSTAINABILITY IN TIMES OF CHANGE

Acting with the Changing Environment

This example of environmental heritage is based on an ethnographic study[4] conducted in Lypyrtti, an old pilot village located in the south-western archipelago of Finland. The historical significance of the village is connected to its waterway location in the surrounding Baltic Sea. Water is the beginning, middle and end of the village of Lypyrtti. Lypyrtti was first an inhabited fishing and hunting area, then an active piloting, farming, hunting, and fishing village for about 500 years. After the Finnish National Board of Navigation abolished the pilotage of Lypyrtti in 1961, the village, consisting of 50 old houses, quieted down to become almost solely a summer resort for the families of the former pilot village inhabitants, and for other people who moved into the village between the 1920s and 1970s. Historically, the villagers' ethnic identity was grounded in their livelihoods. But currently, the summer residents are visitors in their ancestral homes and landscapes. Nowadays, most of the residents live in the village only in summertime. Despite living there only in summer, the villagers are enthusiastic about preserving their local history and the knowledge of how to adapt to the changing local environment and climate conditions. In ethnographic interviews conducted in the village, three themes recurred: childhood memories from the piloting time, stories about the earlier local people and their relationship with nature, and nostalgia for clean seawater.

In Lypyrtti, the landscape changes with the (four) seasons. Changes in weather conditions and the states of water have defined everyday life in the village year-round. In family stories about their relationship with nature, summer residents told how people used to cope with differing natural circumstances. They told, for example, how past generations observed nature, rowed a boat, or went on the ice during the wintertime. Rowing a boat is a good example of environmental heritage: an embodied skill that is inseparably entangled with nature and changes in it. In narrations of rowing, the villagers

gave a full account of what happens when one rows and what actors – water, winds, currents, and the environment as a whole, the boat, the rower – should be considered when rowing.

Through the village flows Ströömi, a waterway with a strong current. In wintertime, the current erodes ice from below, which makes Ströömi dangerous to cross. Therefore, the observations of the local changes of ice are crucial. The villagers reminisced about the exact routes on ice and the points of navigation along the coast that helped to find safe tracks to walk. They related particular ways of testing the hardness of the ice with a specific stick and recounted the characteristics of the specific waters. They stressed how the environment changes every day and that the seasons are never the same. One must be able to forecast weather changes and their effects (about reading the ice as *icegraphy*, see Kouri & Sonck-Rautio, 2022). Here, experience-based knowledge is indispensable. The observation of the changes in the environment and adaptations to them are essential to the identity of the villagers. This intangible heritage changes when respective environmental conditions change. To know how to row – or how to walk on ice – is an example of environmental heritage, in which nature forms an inherent part of cultural practice. It is also 'knowing with' – knowledge as a form of social meaning-making, doing, and acting with both human and non-human actors.

As the Lypyrtti example demonstrates, the process of heritage creation is closely tied with the surrounding environment and changes in it. In Lypyrtti, the efforts to conserve the past of the village and its water environment were carried out by intentional reminiscing. The oral history of Lypyrtti highlighted the functional aspect of environmental relations as epitomised in the stories and performances of the previous villagers, e.g., their rowing or walking on ice. The narrated experience-based everyday knowledge is an intangible heritage, focusing attention on the environment as being lived in, a way of life, where the meaning-making community includes both human and non-human actors.

The people of Lypyrtti talked about the sustainable ways to adapt; by narrating how to row, they performed the act of actively recognising other forms of life as knowledgeable agents in the process of heritage. Thereby, they not only said that the environment or our relationship to it is important or worth preserving but also narrated how local individuals lived in it. They examined in detail their ecological relations, e.g., their actions and co-actors in the environment (see Ingold, 2000). The process of environmental heritage began in the relationship(s) between the local individuals and the other non-human agents in the environment. It became a performed social heritage of the community of the present villagers. The villagers wanted, intentionally, to remember and transmit the meaningful knowledge to the future in times of change.

Fishers' Heritage and Contested Knowledge

People such as fishers practising nature-based livelihoods are in close contact with their local environment. Daily activities help them to develop locale-specific ecological knowledge and skills that can only be learned by experience. Thereby, fishers have adapted their fishing methods and ways of life to environmental conditions. Their ways of life, knowledge and know-how regarding nature can be described as environmental heritage. This heritage is individual, experience-based, and mostly local. It is shared among the members of the community, often through many generations. Coastal small-scale fishers in Finland offer an example of this heritage practice (Sonck-Rautio, 2019).

Today, the coastal small-scale fisheries in Finland are in serious crisis. The operational environment of fishers has changed drastically, especially from the 1960s onwards, due to urbanisation, increasing competition, changing consumption habits and various environmental changes. Particularly the loss of ice cover during the winter months has, together with societal and economic factors, led to the decline of old traditional livelihoods of fishers, such as winter seining. Winter seining was practised on ice, with large seines that were laid under ice cover and pulled up again with the help of horses initially and later with tractors (see Sonck-Rautio, 2017). Currently, small-scale fishers are struggling with different types of environmental changes, such as the increasing number of competitive species including the grey seal (*Halichoerus grypus*) and the great cormorant (*Phalacrocorax carbo*), which are being protected despite their growing numbers, and even if researchers are not unanimous regarding the impact of these animals on the ecosystem.

The population size of the grey seal, previously hunted near extinction, has in recent decades grown due to effective protection. The population has reached its new peak, with 38 000 individuals calculated in the 2019 census in the Baltic Sea (Helsinki Commission, 2021). But the protection continues, while fishers claim that seals affect their livelihood in many ways. They take fish from fishers' gear, often tearing the nets, and cause significant economic loss. The fish also flee from the seals, leaving traditional fishing waters empty. This phenomenon is largely ignored, even contested, in fisheries management and research (Sonck-Rautio, 2019).

Another competitor for fishers is the great cormorant, which disappeared from the Finnish coastal area in the early 20th century but was observed there again in 1996. Currently, there are around 26 000 breeding pairs inhabiting the area. Fishers have observed that great cormorants are very efficient and skilful fishers. The rapidly increasing bird population extracts a lot of fish. For fishers, the great cormorant, which is also a protected species, represents yet another threat.

Traditionally fishers have been very resilient and able to adapt to environmental changes they encounter. The fishers interviewed for this research agreed that the major factor constraining their resilience is not competitive species or environmental changes per se, but the environmental and fisheries-related management dictating the way their livelihood should be practised. In other words, competing species do not represent the biggest threat to their livelihood, which is the lack of possibilities to act and have an influence. Fishers have in recent years been subjected to increasing regulations, including the protection of grey seals and great cormorants and the setting of fishing quotas and minimum landing size regulations for some commercially important fish species such as pike-perch (*Sander lucioperca*). This has led to a serious environmental conflict in which fishers are blamed for overfishing, simultaneously with the population of other predators growing dramatically. At the same time, environmental policies and research are pursued without including fishers' reflections or their knowledge.[5] In the interviews, local fishers noted that in research and decision-making, their knowledge and expertise are often undermined or ignored, leaving them feeling powerless and somewhat bitter.

The fisheries case demonstrates how an environmental conflict can be triggered by neglecting local knowledge and local ways of life in scientific research and policymaking. It also reflects how the objectives of ecological (and economic) sustainability often undermine cultural aspects (e.g., Haenn, 1999). Acknowledging fishers' profound knowledge and experience of the sea and marine environment in connection to their livelihood as valuable environmental heritage – which links the cultural with the natural dimensions of sustainability – could possibly connect them better on the policy level as well as in scientific research. This could also help the balance between the cultural and ecological dimensions of sustainability.

Environmental Heritage and Wildlife

The third example discusses how environmental knowledge and observations of individuals living in the environment and knowing it can complement the authorised heritage and knowledge concerning coastal and marine nature. At the same time, it demonstrates that not all heritage necessarily promotes sustainable development.

Policy practice and environmental policymaking are mainly based on the knowledge formed by present observations. In addition, scientists often utilise historical information produced by researchers in the field. Historical sources, such as archival data, news chapter data and oral history originating from local experience, are usually ignored but could be used to complement the scientific data.[6] The problem lies in how to critically assess the historical context and

people's values and beliefs, which sometimes are contradictory and work against sustainability.

The shared past between the human being and the tick (*Ixodes ricinus*) in the Finnish archipelago provides an interesting case of how local historical experiences can replenish scientific observation and knowledge. Although today's media emphasise that the tick, spreading Lyme disease and tick-borne encephalitis, is an emerging problem in the Finnish archipelago, historical sources reveal that humans have a long relationship with the tick in Finland (Honkasalo, 2020; Taskinen, 2019). Today, people understand these insects as deadly, scary, and ugly entities; in the past, the relationship was more neutral as a survey conducted among laymen on the topic[7] indicates (also Vappula, 1929). Consequently, this heritage, constructed in the relationship between the tick and the human being in the past, can help to adapt to the insect's increasing numbers and alleviate the hysteria that the tick is currently causing in Finland.

As noted, not all heritage is positive and useful. Local knowledge, experience and observations of laymen can also be disturbing, sometimes even harmful to the goals of sustainable development. How people have treated various animal species and valued knowledge of them provides an illustrative case. In the traditional Western world view, animal species were placed on a spectrum: one end indicated species that were deemed to pose a risk or danger to humans, whether real or symbolic, while the other end was populated by species that were considered useful or virtuous (e.g., Thomas, 1984). Animals at the risk end of the spectrum faced ruthless persecution. During the latter part of the 20th century, however, the age-old ideas about animals were in rapid change (Ritvo, 2010), which provides excellent material to analyse environmental heritage regarding wildlife.

In the Finnish coastal and archipelago areas, the differing population histories of the great cormorant (*Phalacrocorax carbo*) and the white-tailed eagle (sea eagle, *Haliaeetus albicilla*) can be used as examples. Both birds used to be killed; they ate fish and were thus considered to be competing with humans for food. The cormorant used to be native in the Finnish coastal area, but the population was eradicated by the early 20th century through the massive eradication campaigns targeted at almost every predatory species (e.g., Birdlife, 2020; Ilvesviita, 2005). As a result of protection measures, including the bans on DDT and PCBs, breeding pair numbers started to increase during the second half of the 1970s (Helsinki Commission, 2009). Currently, the species is present in the whole Baltic Sea area, including the northern parts of the Gulf of Bothnia. But since the cormorant's return to the Finnish archipelagos in the 1990s, it has often been met with hatred and disgust. At present, there is a heated debate in the media and among the coastal inhabitants about the status of the cormorant, which is widely regarded as a harmful animal (e.g., Salmi et

al., 2010). However, it is protected by the provisions of the EU Bird Directive (2009/147/EEC) and thus cannot be killed.

The continuous hatred towards the cormorant is based on the twofold interpretation of bird agency, which as a form of knowledge is based on people's experience of living alongside this animal and then disseminated by word of mouth and via countless different media entries. Firstly, cormorants can locally do great harm to landowners and summer residents by spoiling the landscape and odourscape, because their excrement not only stinks but also kills the vegetation in the colony islets, as well as the soundscape, by causing a lot of noise. Although this problem is very local, causing real harm to only a handful of people, the fear, amplified by the regular press releases about the havoc wrought by the colonies, is that it will only get much worse if the number of birds is not tightly controlled. Secondly, as the previous section of this chapter demonstrates, there is a strong belief among the fishers that cormorants are detrimental to the fish populations. This view is currently much debated among biologists and fishery scientists. Whilst others have found no correlation between the population of cormorants and the health of fish populations, some studies have indicated quite the opposite, at least locally (Hansson et al., 2018; Lehikoinen et al., 2017; Veneranta et al., 2020). In this conflict over the correct environmental knowledge, locals have mostly made up their minds based on their own experience. This leaves little room for peaceful coexistence between humans and cormorants. The situation calls for more broadly framed studies as well as policies that take into account the wide range of societal and environmental changes that are hampering archipelagic life and also note the experience formed by living in this environment – that is, the environmental heritage of the relevant constituencies.

The history of the human–eagle relationship forms an opposite example. It pinpoints the possibility of warmer interspecies relations but also the fact that some species are considered riskier and more harmful for humans while others are considered virtuous or symbolic. These perceptions affect the way different animals are treated and do not necessarily have anything to do with reality. In the past, attitudes towards the white-tailed eagle used to be rather similar to those currently held towards the great cormorant. Only a handful of eagles survived the human aggression in the Finnish Archipelago (Pohja-Mykrä et al., 2012). Since the 1970s, however, the eagle population has multiplied. The success of the eagles has been aided by milder winters, yet the main factor has been the change in human understanding of eagle agency. In the efforts to protect the eagles, many locals volunteered to keep an eye on eagles' nesting sites and spoke on behalf of the eagles in a way outsiders could never have done (Räsänen, 2020). The volunteers used their dual skills to read their environment and communicate with local communities in order to help the previously hated animals. Instead of shooting eagles as they had earlier,

fishers have in recent years started to feed eagles with their by-catches and, by doing so, secured nutrition for eagles during harsh winters. The white-tailed eagle, despite still eating fish, has been adopted as the symbol of archipelagic nature, epitomising the newly developed environmental heritage, which could function as a reformative example of a mutually beneficial interspecies relationship.

CONCLUSION

As elaborated in this chapter, the concept of environmental heritage has consequences for the promotion of sustainability both in terms of research and practice. First, the concept contributes to the discussion on the relevance of local, experience-based knowledge and skills for sustainable society at large, which is particularly relevant in the context of the current book. Environmental heritage highlights the historical – both local and global – construction of knowledge related to its contextual basis and the intra-action between humans and the environment (Jetoo & Kouri, 2021). The concept of environmental heritage challenges the idea that only human communities are actors in heritage processes: non-human actors also have a role. Social relations are also natural, or ecological. The process of heritage begins with the relationship between the individual and his/her environment horizontally as local action, as the first example illustrates. The ways in which human beings relate to their environment are often very specific to local circumstances; they are rarely incorporated into the canon of national history. The concept of environmental heritage can thus increase the visibility and value of local environmental observations, experience, skills, and knowledge. These cultural practices may sometimes reprise uses of the environment that have created the environmental crisis in the first place. Still, they can also inform us about sustainable ways to adapt to changes and co-exist with other forms of life.

The concept of environmental heritage offers an analytical tool to enable the translation of different types of knowledge, from the local and regional to the national or global, through a dynamic process of meaning construction where all communities with their differing understandings are taken seriously. Thus, it offers a tool to promote interdisciplinary – even transdisciplinary – discussion and research, which is of importance for this book. As noted, environmental heritage amalgamates the often fragmented 'know-what', 'know-how', 'know-who' and 'know-with'. The analytical focus of the concept is on what forms of knowing are being used; how and with whom individuals come to know something in a particular context; and how they negotiate shared views with others. Methodologically, this implies using the tools of ethnographic and historical research, such as archival work combined with interviews and observation of knowledge practices in their contexts, as well as co-working with

local people to grasp their tacit and experience-based knowledge. Heritage is a process, and researchers take part in that process by actively planning and organising encounters with different stakeholders where useful environmental heritage can be identified (see Jetoo & Kouri, 2021). This inclusion would be of the utmost importance in our second case to solve the conflictual situation with the fishers.

While trying to find positive and empowering things from the past, the difficulties and contradictions can easily be set aside and not dealt with. The risk is obviously present in the concept of environmental heritage. Difficult environmental heritage also exists (see Matthes, 2019). Our third example illustrates what can be understood as harmful environmental heritage and how difficult it can be to change attitudes and practices related to this heritage. This difficulty implies that if we want to promote sustainable development aided by the concept of environmental heritage, research must accept that environmental heritage can also be damaging. Moreover, it must aim at establishing criteria to assess the sustainability of that particular heritage. This can only be done case by case, as this heritage is inherently contextual. By analysing and producing environmental heritage together with stakeholders, researchers can identify relevant, meaningful knowledge and skills needed for living sustainably with the environment and, further, facilitate the circulation of meaningful knowledge within local and scientific communities. This may also lead to a new form of academic identity that takes seriously the act of researching with, and not on, communities, attempting to connect with 'on the ground' political constituencies, and also making closer connections between different disciplinary fields and ways of knowing.

In sum, the heritage process is largely about finding the relevant, important, and meaningful in each context. It needs to involve an assessment of what is relevant environmental heritage, and what are the valuable skills and features that communities, or society at large, consider important to maintain and cherish and that simultaneously bring about sustainable development. No doubt, addressing contemporary challenges requires strong local cultures and identities (Hein et al., 2019). Bottom-up processes and participation must be further supported. Here, the application of the concept of environmental heritage can help, because the preservation of heritage already has strong political support, particularly in international sustainability policies. Drawing on the ideas presented above, in practical policymaking, cultural heritage and natural heritage policies could be incorporated into one policy: namely, that of environmental heritage, grounded on the idea that heritage is more than historical objects. Potentially, environmental heritage embodies the richest treasure of cultural experience rooted in natural and material environments, urging us to learn from past successes as well as failures.

NOTES

1. The authors would like to thank the anonymous reviewers that commented the earlier versions of the manuscript when it was in review elsewhere, and provided valuable help in the revision of the chapter. The research has received funding from Tiina and Antti Herlin Foundation and the Academy of Finland grant number 315715.
2. Research project *Living with the Baltic Sea in a Changing Climate: Environmental Heritage and the Circulation of Knowledge*, Academy of Finland 2018–2022; doctoral research project of Kirsi Sonck-Rautio (see Sonck-Rautio, 2019), research project of Jaana Kouri (see Kouri, 2017), and research project of Otto Latva and Tuomas Räsänen.
3. The concepts of cultural environment and cultural landscape link the two, aiming to draw together cultural heritage values, environment, and their capacity to function as an economic, social, and cultural resource for regions, and sustainable development (e.g., Kähkönen & Lähdesmäki, 2019). It, however, differs from our elaboration for it refers mainly to the environment (landscape), not to knowledge, skills, and practices.
4. The study examined the people of Lypyrtti as a memory community, who in their narration signify their village and its past. Approaches used during various phases of the study include research on oral history, microhistory, memory studies and environmental history.
5. This neglect is, unfortunately, often business-as-usual in policymaking and scientific research, a problem that has been acknowledged in many fields of humanities and social sciences, including ethnoecology (see Nazarea, 2006) and political ecology (Neumann, 2005/2014), for instance. Ignorance of local voices is such a universal and acute problem in all small-scale rural activities that in 2019 the United Nations approved the Declaration of Rights of Peasants and Other People Working in Rural Areas (United Nations, 2018).
6. The preliminary observations on historical newspaper data, digitised by the Finnish National Library, revealed various details about the shared history between ticks and humans that have not been acknowledged in previous studies of ticks (National Library of Finland, n.d.).
7. The 'Punkit tulevat! [Ticks are coming!]' survey was carried out in cooperation with Otto Latva and the Finnish Literary Society. The Finnish summary of the survey results can be found here: http://nebu.finlit.fi/keruuesitteet/puutiainen_tulos.pdf.

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