In an epoch characterised by human impacts on natural landscapes and transformation of the way people live on the planet, it is perhaps surprising that there has been so little convergence between the novel ecosystems literature and the literature on conservation in cultural landscapes. Novel ecosystems have emerged in part because of changes in social, economic, and cultural activities which, over the last few centuries, have diverged significantly from those of previous ages. Cultural landscapes have been shaped by many of the same changes, with globalisation, agricultural intensification, abandonment, consumption patterns, and urbanisation altering the natural and cultural values of these landscapes and, in many cases, putting them at risk (Plieninger and Bieling 2012a). In other words, the drivers towards novelty are fundamentally the same across landscapes, whether they are cultural or more ‘natural’.

However, while there has been some exploration of the synergies between the concept of novel ecosystems and cultural landscape conservation (Macdonald and King 2018), it is rare in practice to hear someone refer to a cultural landscape as a ‘novel ecosystem’ or express concerns about it becoming a novel ecosystem. This may be because they are often perceived to be ancient systems, with some having been transformed long
before industrialisation, although in reality, many have had much more recent transformations (Plieninger and Bieling 2012b). There is even an argument to be made that all cultural landscapes were novel at one point in time, even if that was several centuries or even millennia in the past. Regardless of these past changes, it is clear that many landscapes are becoming novel again right now in our current phase of transformation, the pace of which shows no signs of slowing. The need to confront this reality is pressing.

Can Cultural Ecosystems Be Novel Ecosystems?

Though cultural landscapes are not often associated with the term ‘novel ecosystems’, it is interesting to note that one of the chief bodies involved in the conservation of cultural landscapes, the United Nations Educational, Scientific and Cultural Organisation (UNESCO), helped to popularise the concept in a 2006 paper that was born of workshops sponsored by UNESCO’s Man and the Biosphere Programme (UNESCO 2019a). This programme is important for the conservation of cultural ecosystems, with 700 biosphere reserves across the world that seek to conserve both biodiversity and cultural diversity in highly valued cultural landscapes. Although it could be argued that the whole world is now a cultural landscape in the Anthropocene, these landscapes are valued specifically for the ways in which human activities have shaped them dynamically over time through activities such as grazing, harvesting, grass cutting, coppicing, and more. Cultural landscapes are broadly defined as cultural properties that represent ‘the combined works of nature and man’ in the World Heritage Convention, and are ‘illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal’ (UNESCO 2019b, p. 20). Biosphere reserves incorporate nature conservation—but it is not their sole purpose—and they do exclude human activities. Rather, they seek to maintain evidence of human settlement in a landscape context in ways that are important to many of the people who live, work, and visit those landscapes. Cultural
landscapes provide a range of services beyond biodiversity where losses are evident but even more difficult to quantify, including the loss of countryside, heritage, and scenery that is aesthetically pleasing and good for recreation (Plieninger et al. 2014).

This chapter considers the ways in which rapid and intense social, economic, and ecological pressures are transforming cultural landscapes through the lens of novel ecosystems. In doing so, it aligns with a particular view of cultural landscapes that is common in the nature conservation literature, which sees these as landscapes offering a range of benefits, including heritage, livelihoods, aesthetics, and biodiversity, but which are threatened by change or disappearance (Jones 2003). This is of course not the only view. Cultural landscapes are often biodiverse and are increasingly embraced as important tools for nature conservation (Phillips 2002; Angelstam 2006; Plieninger and Bieling 2012b). In practice, this has meant that the conservation of cultural ecosystems and the conservation of biodiversity have sometimes been at odds, with the two views tending to differ on the role to be played by humans—whether to keep them out of landscapes to protect biodiversity, or to use human activity to maintain particular features of landscapes (Plieninger and Bieling 2012a; Taylor and Francis 2014). In the case of the latter, the further question posed is what, precisely, should be the aim of such human activity, and, in the context of the Anthropocene, how achievable are these goals?

Ecological restoration often seeks to restore ecosystems to baselines prior to human settlement and seeks to minimise human drivers of change. When one seeks to restore a cultural landscape, on the other hand, one is seeking to return it to a form that exemplifies the intertwined relationships between humans and nature. In both cases, we are faced with the reality of novel contexts in the Anthropocene, which require a rethink of traditional paradigms, practices, goals, and underlying assumptions (Macdonald and King 2018).

Novel ecosystems provide an important lens through which to undertake this rethink. Consideration of novel ecosystems can enlighten us to the nature of change in cultural landscapes and also provide opportunities for expanding ideas about what services novel ecosystems might provide. The pressures that have created novel ecosystems are also akin to the pressures that have eroded the values of cultural landscapes. A
number of synergies between research on cultural landscapes and novel ecosystems have emerged. This includes the complex relationship between humans and nature, the dynamic nature of ecosystems, the fraught challenges of returning landscapes to static baselines, and the need for more participatory approaches that accommodate multiple values (Macdonald and King 2018). Those involved in landscape-scale conservation, in particular, have had to grapple with the notion of cultural landscapes and novel ecosystems, as these often form a substantive portion of the matrix across a landscape (Craig et al. 2000; Moreira et al. 2006). A key aspect of this struggle is recognising that restoration to historical baselines—irrespective of whether those are rooted in ideas about nature or culture—is often untenable in the novel context of the Anthropocene. Given that ecosystems have never been static, it may have never been a reasonable goal, and yet it is at the core of much conservation practice. It also means recognising that one of the many reasons that novel ecosystems are self-organising and difficult to restore is because they exist within transformed social and cultural contexts that reinforce those conditions. Just as the novel ecosystems literature draws attention to the need to consider different baselines, new goals, and multiple values (Light et al. 2013; Higgs 2017), the same needs to be done for cultural landscapes if they are to deal with the novel social and ecological realities of the Anthropocene.

**Changing Cultures and Shifting Baselines**

This chapter focuses on the intersection between biodiversity conservation, cultural landscapes, and drivers of novelty that are transforming those landscapes. Drawing on examples from the UK, Estonia, and Japan, it focuses primarily on the second (ideas) and third (objectives) domains of change in governance, although it touches on the other three too (stories, policies, and capacity) (Chap. 3). The narratives as well as the case presented in the previous chapter of grassland conservation in the Tasmanian Midlands suggest that there is a view that embracing cultural landscapes may provide some kind of immunity to concerns about the emergence of novel ecosystems. This idea is evident in the notion that
novel ecosystems are irrelevant in the ‘old world’, as well as the notion that the Midlands, and Australia more broadly, would be better served by adopting the concept in its agricultural landscapes. After all, the notion of conserving biodiversity within a ‘working landscape’ acknowledges that biodiversity does not exist in a vacuum. Beyond the Tasmanian Midlands example, several authors have suggested embracing ideas of working landscapes, living landscapes, and multifunctionality that will not only help maintain livelihoods and social values, but also help address biodiversity loss and modernise both ecological and cultural conservation practices, helping us move away from problematic preservationist ethics (Agnoletti 2006; Plieninger and Bieling 2012b; Roe and Taylor 2014). Achieving all of these things will be demanding, and as with all aspects of the Anthropocene, there is a need to be realistic about the world in which we are now working. Not only are there evident tensions between nature conservation and cultural landscape conservation, it is difficult, if not impossible, to maximise both biodiversity values and the full range of ecosystem services provided by cultural landscapes. What this chapter seeks to do is to explore potential leverage points for grappling with transformation in cultural landscapes, with an eye to improving social and ecological outcomes.

There are opportunities to change governance by critically reflecting on the way we think about conservation of biodiversity in cultural landscapes (Domain 2). These are driven by a number of different cultural and normative factors, including cultural (often romantic) ideas of what landscapes should look like, as well as professional and social norms, and assumptions about what is most important to the communities that live in those landscapes. These factors are fundamental in shaping the way we respond to change in cultural landscapes, both past and present (Hunziker et al. 2008). There is also a thread of sadness in the literature on cultural landscapes, with the idea that transformation of these landscapes presents grave losses for both society and ecology. The loss of communally managed commons and the erosion of their stewardship have long attracted a great deal of interest from those who are primarily concerned with biodiversity loss and nature conservation, as well as those who are more focused on cultural landscapes (Ostrom 1990; Agnoletti 2006; Plieninger and Bieling 2012a; Rotherham 2013). It has led some to ask if we have come
to the ‘end of tradition,’ where communities and nature are being cleaved apart, either through full-on abandonment or from sustained social and economic transformations that render the management activities that shaped these landscapes obsolete (Bolthouse 2013). As with all of the conversations so far, there is also a hope that this situation offers the potential for renewal:

Surveying this grave situation, one is certainly prone to wonder whether we are indeed witnessing the ‘end of tradition’?

The question mark after the ‘end of tradition’ is imperative, however, for the end of tradition also marks a potential beginning. Indeed, while many common traditions are in the process of unravelling, there are numerous instances where new traditions are being reweoven from the loose threads. The regrettable end of older commoning traditions thus signals an opportunity for remaking commons through the reweaving of custom. (Bolthouse 2013, p. 387)

Just as institutional change means building new practices on top of old traditions, the same can happen in cultural landscapes. And similar to the notion of a ‘good’ Anthropocene, it is possible that, by reweaving custom, many cultural landscapes that are experiencing loss of tradition can shift towards a more positive trajectory.

There are complex relationships between nature and culture that lead not only to different assemblages of species in different areas but also to different ideas about what is worthy of conservation (Rozzi 2013; Collier 2014; Backstrom et al. 2018; Bridgewater and Rotherham 2019). Ancient and species-rich hedgerows, for example, are a priority habitat under the UK’s Biodiversity Action Plan. Yet, the ‘ancient’ here is subjective, defined as the time before the Enclosures Acts were passed between 1720 and 1840 (University of Hertfordshire 2011). Such ideas might seem absurd in other contexts, but they make sense for British conservationists. All of this points to several key considerations in any discussion of novel ecosystems—novel with respect to what? And to whom? Novel on what timescale? This is why revisiting baselines, objectives, and the logics of decision-making is essential when considering of how governance might need to change (Domain 3).
Baselines are important in both the conservation of cultural landscapes and ecological restoration ecology; they just adhere to different logic. In cultural landscape conservation, the goal is to maintain living traditional cultural landscapes or restore/preserve past cultural landscapes, whereas ecological restoration favours returning ecosystems to historical trajectories (Macdonald and King 2018). Knowledge about history is a virtue in restoration because it provides clues about what might happen in the future, but one of the challenges of the Anthropocene is that we inevitably confront challenges we have not previously seen (Higgs 2012). The emergence of novel ecosystems and the existence of cultural ecosystems in novel contexts call into question whether those baselines are achievable or potentially even desirable in some cases. The issue of baselines is one of the most common threads in the novel ecosystems literature, because so much of conservation and restoration practice are determined by the baselines we strive towards. The novel ecosystems debate has brought the inherent subjectivity in these baselines to the fore. In North America and Australia, these baselines tend to be anchored to pre-human settlement, though these ideals are quite difficult to achieve given the extensive modification made to the landscape in subsequent centuries. In Europe, many of the most intensive changes occurred several millennia ago, so if defining novelty with respect to a baseline from a few hundred years ago, then it is easy to dismiss the label of ‘novel ecosystems’ even in highly modified ecosystems.

Whatever the logic used to determine them, baselines provide an incredibly important anchor point for developing objectives. What baselines are used, how those baselines are determined, and who is involved in decisions about baselines and objectives are fundamental questions in conservation and restoration. These questions are also central points of discussion in the novel ecosystems debate. While having a strong evidence base is important, many of the issues about baselines, objectives, and decision-making are normative questions that fall into the realm of governance. Defining an ‘ideal’ state, as represented by an agreed baseline, is not necessarily about going back to the most biodiverse, or even the most functional, ecosystem state. You would be hard pressed to argue that the moorlands of the UK, for example, are more biodiverse than the forests they replaced, but the issue of planting trees on the moors is
politically contentious. Attitudes towards non-native species and views on what species should be in a landscape also differ significantly between members of the public and professionals, and across different geographic contexts (c.f. Selge et al. 2011; Lewis et al. 2019). There is of course a link to Domain 2 here, as there are a number of cultural and normative factors at play. The perception of what landscapes should look like, and the value placed on different aspects of a landscape, inevitably inform what ecosystem state is considered ideal. That is true both in ‘natural’ areas as well as in those systems that are modified, for example, cultural landscapes or novel ecosystems.

Historical baselines have long been, and continue to be, the cornerstones of conservation practice. Ecological baselines refer to points in time and space that are used to compare present-day sites to some time period in the past. While they previously were anchored to fairly static states, in recent years, restoration has shifted away from this notion towards a more dynamic idea of historical trajectories (McDonald et al. 2016). They are informed by historical data, but over what time period is a key factor and has a profound impact on management decisions, as well as whether an ecosystem is considered ‘novel’ or whether a cultural landscape is in need of restoration. They are often derived from historical literature, palaeoecological studies, or surviving relics of relatively untouched ecosystems (Gillson et al. 2011). Some ecosystems are novel only when they are compared to historical conditions (several centuries in the past or, in some cases, even prior to human settlement), whilst others are assumed novel when regarded from an evolutionary or geologic perspective (several millennia or across geologic timescales) (Radeloff et al. 2015; Truitt et al. 2015). Partly, perceptions on what constitutes a baseline and what constitutes acceptable and unacceptable change are informed by disciplinary backgrounds. Palaeoecologists, for example, tend to view novelty differently to how a conservationist working on restoring land abandoned in the past century defines the idea. As one interviewee said about cultural ecosystems:

If in the 1100s as this new system was set up and the forests were cleared, we would have been out there now chaining ourselves to trees saying, stop! Don’t cut down the virgin forest! And now the system has collapsed, but
here we are trying to fight to save what had been created by us in the 1100s. I have changed my view a bit, though, because [woodland meadows] are a novel ecosystem, but they are a really attractive ecosystem. So even though it’s made by people, you know, the door is open, it’s a novel ecosystem, certainly novel in the 1100s. But because it’s been there 800 years, we’ve come to accept it and we’ve come to like it. And I think conservation is about what we like, you know.

Much of conservation is driven by exactly that: striving towards baselines that return ecosystems to a state we like—often shaped by aesthetic qualities and nostalgia. There is a certain romanticism evident in much of conservation, whether it be from activists, scholars, practitioners, or politicians (Alagona et al. 2012). This nostalgia is so strongly embedded into conservation that some have argued for its pre-eminence, even if the embrace of nostalgia is demonstrably at odds with the changing world (Higgs 2003, 2012; Howell et al. 2019).

Desirable States and Cultural Ecosystems

The previous chapter explored the notion of helpful and unhelpful resilience (Standish et al. 2014), and the notion of ‘desirable’ and ‘undesirable’ species in ecological restoration. The same ideas can be applied to cultural landscapes that have experienced radical or even sustained, gradual change. As with any other landscape, people may hold fixed notions about what a cultural landscape ‘should’ look like. Despite a popular perception that cultural landscapes are meant to be held, like a snapshot in time, in a particular historic state, it is important to remember that in reality cultural landscapes are dynamic and have always needed to respond to changing conditions (Plieninger and Bieling 2012b; Plieninger et al. 2014). It is also important not to assume that people want cultural landscapes to be static, and that aesthetic preferences as well as what values are considered most important will inevitably shift over time. Much of the writing on cultural ecosystems is based on tacit assumptions or outdated evidence, and there is a need to collect updated and
context-specific evidence about what people do and do not consider desirable, both now and into the future.

Accepting that cultural ecosystems are not immune to the concept of novel ecosystems can open up space for the development of new possibilities, even if they defy long-standing assumptions. Although cultural landscapes have always been dynamic because of their close connections to human activity, what is different now is just as true as for conservation writ large, that is, the pace, scale, and intensity of the drivers of change in those landscapes. In contrast to the vision of a quaint rural landscape with small-scale, diverse systems of agriculture and traditional villages, the reality for many cultural landscapes across the world is that they are facing the same large-scale global geopolitical and biophysical pressures as everywhere else. Many of these are related to governance, for example, socio-political transformation, shifts from state control to community governance, changes to legal rights and autonomy, demographic and socio-cultural changes (e.g. migration, ageing populations, abandonment), and economic globalisation (Gu and Subramanian 2014). Because many cultural landscapes are agricultural landscapes, agricultural policy has also been a major driver of change, with subsidies often facilitating intensification and exacerbating issues with abandonment in cultural landscapes (MacDonald et al. 2000).

Discussing transformation of cultural landscapes allows us to focus on many of the social issues that have been raised in the novel ecosystems literature. Although a great deal of focus is on grieving the loss of intact native biodiversity, there are also reasons to mourn the loss of social and cultural values as well. The intensification of anthropogenic change shifts the bar of restoration and challenges our ideas of historicity, and it is unclear what historical references are useful for informing recovery and resilience in this changed world. Novel ecosystems may weaken ideas of historical fidelity, but there are many different ways for history to inform restoration (or renewal) of landscapes whilst still allowing them to flourish under novel conditions (Higgs 2012). Historical referents may become less important, but they are unlikely to disappear altogether, and for good social and ecological reasons. Whether novel ecosystems will be valued by people and whether they will provide services people value are still open questions (Light et al. 2013; Yung et al. 2013; Clement and S. Clement
Standish 2018), particularly if people do not feel connected to those landscapes in the same way as they do to historical ecosystems and cultural landscapes. It is perhaps a terrifying prospect that the initial shock of transformation might be followed by an adjustment, and novel ecosystems will simply become normal eventually. Yet, this is precisely what happened in the formation of many cultural landscapes with important ecological values.

**Cultural Severance and Biodiversity Loss**

This brings us to a central idea that has informed the research in this chapter: *cultural severance*, which refers to the physical and psychological disassociation between cultural activities and landscapes (Rotherham 2007). The term provides a useful bridge between all that has been discussed so far, as it connects the idea that ecosystems are transforming to the idea that social and economic systems are transformed. It also allows us to consider the understudied social dimension of novel ecosystems, including what the loss of intact ecosystems means for long-standing cultural connections to ecosystems, and how many changes in ecosystems can be seen as a result of the severance of those connections (Rotherham 2013). In this view, the Anthropocene represents a great homogenisation of the biosphere through the movement of non-native species across the world. In what is sometimes called ‘biocultural homogenisation,’ there are concerns about the interwoven losses of native biological and cultural diversity at the local, regional, and global scales (Rozzi 2012, 2018; Gavin et al. 2015; Bridgewater and Rotherham 2019). It is essential to note here that this book does not cover the critical issues of traditional ecological knowledge and indigenous stewardship of ecosystems. Not only would I not be able to do these issues justice because they are not within my realm of expertise, but there are many other authors who have written about these issues in depth. However, it is interesting to note that many landscapes that have been shaped by indigenous people, such as a great deal of Australia, are only rarely framed as ‘cultural landscapes’ despite being shaped by Aboriginal people over 50,000 years (Hill et al. 2013, b). With that vast timeframe in mind, it could be said that the history of
indigenous cultural landscapes is the epitome of cultural severance. Quite a lot of nature conservation, such as protected areas that keep people out, has been viewed as hostile towards indigenous management practices, severing indigenous cultural connections to the land and contributing to the loss of traditional ecological knowledge (Lee 2016; Berkes 2017).

**Heathland in the UK**

The UK has a long history of extensive human use and is more densely populated even than most other European countries, so it is dominated by cultural landscapes. Heathland and moorland are the most extensive semi-natural ecosystems in the UK, though, as with all landscapes, they have faced a range of pressures that have reduced their extent and eroded natural and cultural values. For many, these are perhaps the landscapes with the most romantic associations, as they feature heavily in the works of many celebrated Romantic writers of the nineteenth century. Most of this romanticism is associated with the uplands, areas of heathland that dominate some of the country’s biggest national parks, such as the Peak District, Lake District, and Dartmoor National Park. However, there are also lowland heathlands, although there is vanishingly little of this left, as it is about one-fifth of its former extent (The Wildlife Trusts n.d.-b). Heathland can be wet or dry, and there are several different types of heath, including transitional heath, acidic mires, and coastal heath, but for the purposes of this section, it is sufficient to focus broadly on upland and lowland heath as a cultural landscape.

These ecosystems are cultural landscapes, shaped over millennia by a range of human activities, including grazing, burning, and cutting. Traditional uses would have included harvesting bracken for bedding; turf for fuel or roofing; holly, bramble, and gorse as fodder; grass meadow cut for hay; as well as cutting wood for construction (Rotherham 2017b). Many of these activities began during the Bronze Age approximately 3000 years ago, accelerating a process of widespread human intervention in the landscape that began with the clearing of forests 5000 years ago (The Wildlife Trusts n.d.-a, n.d.-b; English Nature 2002; Rotherham 2017b). The resulting heathlands were the result of human-driven
ecological transformation. However, because this transformation occurred well before the idea of ecological baselines existed, these landscapes instead are considered to be the baseline to which we should strive. Interviewees noted that they are essentially landscapes frozen in a particular state of succession, and if they are abandoned or disturbance is removed, they go through a major successional shift to birch wood, and with that comes a shift in the flora and fauna found in these landscapes, resulting in dramatic aesthetic changes.

Many heathlands are designated as Sites or Areas of Special Scientific Interest (SSSIs/ASSIs) under the *Wildlife and Countryside Act 1981*. Many of these also have other designations, including protection under the EU Habitats Directives and being part of the European Natura 2000 network. They are also listed as priority habitats or habitats of principal importance under legislation in each of the devolved administrations (England, Wales, Scotland, and Northern Ireland) and the target of country-level biodiversity strategies (JNCC 2019). These designations, as we know by now, do not mean that these landscapes are being conserved. The initial driver of their decline was cultural severance. Like many other priority habitats and particularly cultural landscapes, they have experienced decline, as the economic drivers—and the human activities—that created and maintained them waned. All over the UK, former heathland areas could be considered by most measures to be novel ecosystems. Many projects seek to restore lowland heath to its former glory, but this ignores several major changes, including cultural severance. Heathland is in decline because the cultural activities that maintain it have been on the decline since the Industrial Revolution. Abandonment, conversion to agriculture, forestry, housing, mining, and unsuitable fire regimes have also played their parts. Moreover, climate change is expected to provide further stresses that shift the composition of these landscapes, leading to the loss of what would be considered ‘typical’ heathland landscapes and the potential transformation of them into acid grassland (Natural England and RSPB 2019).

While the cultural heritage value of heathlands is clear, the legal designation and prioritisation for biodiversity values may seem strange, given that many of the heathlands and moorlands that remain are species-poor. Although it is a commonly held belief that this is an inherent feature
of these cultural landscapes, it has been argued that the heathland we see today is only a shadow of the former commons which was more species-diverse prior to cultural abandonment, overgrazing, and management directed at shaping the landscape for particularly profitable species such as grouse (Rotherham 2017a, b; Rotherham and Bradley 2009; Britton et al. 2017). Many interviewees and documents concede these landscapes are not particularly species-rich, but there are questions about whether this has always been the case. When in their ‘ideal’ condition, a heath landscape is often described as a ‘diverse mosaic’ with structural and age diversity of the species, and there can be significant micro-diversity that is not immediately apparent (Rotherham 2009). This does not necessarily mean they are particularly biodiverse by international standards, but they certainly can provide important habitats for flora and fauna if managed appropriately. They are normally dominated by flowering dwarf shrubs such as heathers and gorses, although the species present will depend on whether they are upland or lowland heathlands, and where in the UK they are found (Natural England and RSPB 2019). Even after restoration, they are prone to invasion, particularly from native invasive species such as bracken (Alday et al. 2013). They generally have poor, acidic mineral soils, due in part to the removal of trees, which make them not particularly useful for broad-scale agriculture, hence the reason they were not converted in the first place. When left to their own devices and trees return, they increase the nutrient content of the soil, though this is generally discussed by British conservationists as a negative feature, because it means they are no longer heathland. Nitrogen deposition from air pollution is also a significant factor in the decline of heathland condition (Holden et al. 2007).

This links back to baselines (Domain 3) and policy prescriptions (Domain 4), which are both designed in stark contrast to the Australian example. Rather than prescribing particular species compositions, the Priority Habitat Descriptions provide a mere outline of the characteristic species. The lowland heath description is a brief paragraph summarising the typical species and specifying that the defining characteristic that distinguishes lowland heath from an acid grassland is that it has over 25% dwarf shrub cover. The description of upland heath is slightly longer but similarly vague, with upland heath having to be further distinguished
from blanket bogs, which also contain shrubs, by having a thinner layer of peat (Maddock 2008). To be eligible for government stewardship funding—which implies a preferred baseline—there also needs to be 1–10% bare ground cover, less than 15% tree cover, age and structural diversity of heather and gorse, and less than 10% bracken (UK Government 2019). This is perhaps the result of the fact that British ecological communities are not as easily classified as they are elsewhere, even in continental Europe, which one interviewee suspected could be due to the especially prolonged period of intensive human use across most of the British Isles. Such an approach is more flexible than the Australian example (Chap. 4) and thus could bring benefits in terms of managing novel ecosystems; however, it may not necessarily lead to more biodiverse or functional ecosystems. For example, this tends to mean restoration focuses on a selection of the major species and controlling a few species (e.g. bracken). From a biodiversity perspective, it is better than before, and it looks more like heathland, but as one ecologist noted, it is often not very species-rich.

Different to other landscapes where subjectivity is often a matter of intense debate, most experts who were interviewed for this book were candid about the reason for their protection being primarily related to cultural preferences and the sheer extent of these landscapes. Though a few argued that these landscapes were more biodiverse than the forests they would have replaced long ago, most accepted that they were not particularly species-rich. Nonetheless, they noted that there was a duty of care to conserve these landscapes under legislation, but we had failed to do that. As one ecologist said:

The reason we’re hooked up on them in terms of conservation is that we believe in Britain, rightly or wrongly, that we should maintain the habitat we’ve got. Now, the trouble with that is, and this is where the nature conservationists failed miserably these first few years, is they thought, let’s designate a site and then walk away. Once it was designated, it was conserved. Suddenly you realise that the thing you’ve actually conserved it for was dying. It was going, it was dying
This is, of course, the case with most ecosystems: just because they have a legal designation, this does not necessarily translate to protection. As with all cultural landscapes, they require a great deal of active management. Yet because of cultural severance and the loss of the socio-economic conditions that shaped these landscapes, conserving these systems means that governments must artificially create the socio-economic conditions that brought them into being in order to keep these sites actively managed. This means that conservationists or landholders are funded by the government, for example, through the countryside stewardship scheme, to mimic the processes of disturbance that created these systems in the first place. In a sense, cultural landscapes that exist in novel contexts are even more intensive to manage than novel ecosystems. Freezing heathlands and other landscapes in a particular stage of succession requires intensive ongoing management, and they are certainly not self-organising in the way that novel ecosystems typically are, unless we find ways to mend severed cultural ties.

This preference for keeping humans on the land is entirely consistent with the approaches to ‘rewilding’ that are emerging in the UK. While there has certainly been media attention paid to rewilding and other transformative opportunities in these cultural landscapes, the idea that the UK might consider a paradigm shift in these landscapes has not received much serious consideration by the government. There have been nods to the need to change, including the adoption of natural flood management policies and pledges to plant millions, or even billions, of trees. But these have been marginal, and the government’s preferred options for managing these landscapes is fundamentally unchanged. Even in the face of evidence that they will be further transformed by climate change, the political preference is still to maintain, restore, or create more of this habitat or foster the activities that create these habitats, rather than looking at other ways to enhance the resilience and biodiversity values of these landscapes (Natural England and RSPB 2019). These policy recommendations are essentially the same as those from 25 years ago.

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1 It is worth noting that rewilding projects are framed as harkening back to a time when nature was more intact; they, in fact, often produce novel or designed ecosystems, as they often need to use surrogate species (e.g. domestic cattle) or mimic certain dynamics (e.g. shooting deer to replace predator-prey interactions).
(Thompson et al. 1995). While they are sensible as cornerstones of biodiversity policy, the combined social, economic, and biophysical pressures on already stressed heathlands suggest more radical intervention may be required to bring landscapes back from the brink. What that might look like is a matter for public debate.

Thinking back to the discussion about institutional change (Chap. 2) and the domains of change (Chap. 3), there are two key opportunities that have not been leveraged sufficiently in the UK. The first is the window (or perhaps windows) of opportunity that the country has to transform the way that it governs biodiversity. It has been 4 years since the vote to withdraw from the EU (Brexit), and a significant tranche of the funding for conserving cultural landscapes is funnelled through the EU, via the Common Agricultural Policy (CAP) payments, particularly those for Rural Development, known as Pillar 2 payments. CAP payments are subsidies\(^2\) that, depending on how you classify them, represent more than half of the income that farmers get from agricultural activities or perhaps even more than they get from selling agricultural commodities (Milne and Braham 2016). Declining farm incomes, shrinking rural populations, and changes to payment schemes have long contributed to the changes in heathland management (Holden et al. 2007), and these drivers are only projected to intensify post-Brexit. The British uplands are expected to be particularly sensitive to any policy changes that might occur, given the fact that farm incomes are already so low, with potential for further abandonment in a post-Brexit world (Bunce et al. 2018; Arnott et al. 2019). The scenario of abandonment and large-scale transformation in the wake of Brexit is certainly not in line with the government’s stated vision for the uplands (Mansfield 2019) or its vision for a ‘green Brexit’ (Defra 2018). The government has long expressed interest in developing a more environmentally friendly CAP scheme, but whether this will be realised post-Brexit remains to be seen. CAP payments have been among the most influential source of funding in shaping the management of heathland landscapes, and whatever policies and governance systems that are implemented post-Brexit will be just as influential for these landscapes.

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\(^2\) Pillar 2 payments are not classed as subsidies by the UK government, hence the discrepancy.
There is certainly a great deal of language about greening Britain, and environmental governance features heavily in the Environment Bill and related policy documents (c.f. Defra 2020). Although the government only has a brief window to implement a new domestic environmental governance regime to replace the gaps left by the removal of EU policy, progress on policy and governance reform has been slowed in the wake of the COVID-19 pandemic that sent the country into lockdown in early 2020. The lockdown has led to promising reports about the return of nature (c.f. Rutz et al. 2020) and the reduction in carbon, perhaps bolstering the doom and gloom that characterised so much of the post-Brexit discussion. There is now talk of a green renewal and a green economy in the wake of the lockdown (Bailey 2020), but it is not yet clear whether the economic decline will lead to a worsening or a revival of the crises discussed in this book. In order to take advantage of this window of opportunity, a number of conditions will need to be met (Chap. 3), including the emergence of leadership with both the willingness and the means to shift the conversation, and the capacity to understand what is and is not working now (Domain 5).

This leads to another theme in the interviews, indeed, the most common theme—the UK is at a crossroads, and there was the opportunity to turn the country into a base for experimentation and reform. At present, it is an untested idea, yet this suggestion of using the countryside as a laboratory for landscape-scale change has potential. Central to the idea is the fact that the UK is not a hotspot for biodiversity, but it could potentially provide a refuge for nature, particularly under a changing climate. Ironically, this opportunity for positive transformation is, in part, a result of the long-term transformation that has already occurred over millennia, with little intact biodiversity left. Given that most new species do not prove to be problematic (Chap. 4) and the UK has relatively few endemic species, it is a less-risky place for experimentation and new approaches than elsewhere on the planet. There is the potential that the UK could deliberately decide to become a refuge as the climate changes (Thomas 2017). This idea that the UK is a place where new species could

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3 The UK is 29th from the bottom out of 218 countries assessed in terms of its ‘biodiversity intactness’ (Scholes and Biggs 2005; Hayhow et al. 2016).
be introduced and new ecosystems could be created is, however, provocative, as it implies the necessity to let go of idealised notions of what British landscapes should look like—a near-existent threat on an island dominated by cultural landscapes. But choosing to do nothing is, of course, also a choice. Given that we are on track to exceed the target of keeping warming below 2 degrees C, one interviewee noted:

That means that by mid-century, we’re actually going to be needing to move some of these things to stop them going extinct if we wish to, and if we don’t do that, we will effectively, collectively be making the de facto decision of humanity, that it’s not important enough for us to stop the extinction of these species. Because we know that there is a risk, and we are not doing the things that are required to save them. We won’t be able to stop an enhanced extinction rate, but we might be able to save a fraction of those species that would otherwise go extinct.

This may seem a grim idea to those who love cultural landscapes, but, as noted previously, all cultural landscapes were at some point novel. Though it may be an uncomfortable transition, there is potential for new cultural landscapes to emerge that may, in fact, be more in keeping with the novel social, economic, and ecological conditions than those that are here now. The UK could, one interviewee noted, make a bigger contribution to biodiversity than it has over the past few centuries, by actually embracing transformation. This, of course, will require an open conversation between experts, decision-makers, landholders, and the general public; but if the time is not right now, then when?

This points to a bigger issue that has not as yet been confronted: if there is resistance to change, then who is resisting, and whose baselines are we talking about? If the heathlands are changing, and if they are neither biodiverse to the point of demanding prioritisation in conservation; nor particularly important for providing ecosystem services that people value, then what is the barrier to change in policy and practice? It may be legislation, or it may be experts (Chap. 6). It is also very likely that it is a public mandate to keep these landscapes as they are. Legislative mandates to provide some degree of protection to the heathlands exist, but this is not the same as a democratic mandate, and there have only been marginal reforms to biodiversity policy in the UK. This gets to the heart of one of the ways in which
deliberation and intentional reform of governance can be potentially transformative—in order to engender this process, we must move beyond assumptions and actually start asking people what they want these landscapes to look like. Despite public provocations and political pledges, there has been insufficient investment in understanding how the general public, and even the people who lived in these environments, perceive these landscapes and what they aspire for them to be. Most people who were interviewed admitted that the idea that heathlands needed to be protected was an assumption, rather than an empirical fact. Most people who were interviewed were pragmatic, noting that this was a conversation that needed to be had, despite them not being wedded to the outcome, for example,

At the moment, the push is to have cultural because that’s what we’ve got. You go to the Lake District and you’ve got the upland grassy fields, created by grazing, that’s what people come to see. If that’s covered in trees, would there be that much real difference to the public? Some people would say yes, we like open fells. Others would say, we quite like trees. … that in itself is cultural.

The speculation inherent in this quote gets to the heart of the matter: the idealised concept of the landscape will necessarily vary across users of the landscape, those who live in the landscape, and those who make the rules about what happens in the landscape (Chap. 6). We already know that those members of the public who recreate in heathlands do so not because they feel they are particularly special, but in part because they find them easily accessible from where they live (Hornigold, Lake, and Dolman 2016). The question of how similar or dissimilar these perceptions are to conservationists and policy makers, or, indeed, which stakeholders should have preference in the discussion, is, as yet, an open question.

Returning to this idea of cultural ecosystems in novel contexts, even if they do not meet the definition of a ‘novel ecosystem’: if we cannot change the context, should we still mimic cultural activities to make these landscapes look like what they did in the past? From a governance perspective, there are deeper questions about whether or not this is legitimate or whether conservation bodies are accountable to the public, as there is no evidence that the public (a) prefer these ecosystems remain as heathland instead of forest or some other landscape, (b) accept that their taxes be directed towards this, or (c) whether they feel this is the best way
to maintain these landscapes in the context of the immense social, economic, and environmental changes that the country is experiencing (Domain 2). There are many assumptions about what the British public wants, particularly in this time of transition. What does exist does not suggest there are strong preferences for them or views about how they should be managed, whether in the UK or in other contexts (Davies et al. 2016; Kiley et al. 2017).

Most participants in this research felt that, if you asked the British public what they wanted from the landscape, it likely would not match ideas about what the landscape ‘should’ look like among British conservationists. Several of them acknowledged that the landscape felt a bit grim, a view that is echoed in the aforementioned Romantic writings. While there is speculation that this is because the public is urban and disconnected to their land—ideas that are implicit in the notion of cultural severance—the British public are fundamental to resolving these challenges and questions in a democratic context. From a governance perspective, it does not make sense to dismiss the majority of people who pay for British conservation and benefit from these landscapes, whether from recreation, drinking water, or from inherent values of nature. There is an argument to be made that current approaches undermine core principles of good governance and are based more on assumptions than on legitimate mandates (Chap. 3, Domain 2, Table 2), and these challenges are necessarily more complex in the Anthropocene because impacts and benefits reach well beyond local contexts, unlike when these heathlands were formed. Ignoring these challenges will ultimately undermine capacity to deal with transformative drivers of change (Domain 5), in part because the publics who pay have not been presented with genuine choices about what they want from their landscapes now and into the future. There is also strikingly little opportunity for the public to hold the government accountable despite the fact that urban publics largely pay for land management despite not being ‘connected’ to the countryside. In a democratic system of governance, is it fair to ask the populace to pay for a small number of people to manage cultural landscapes to which they are not particularly attached? For conservationists and enthusiasts of the heathlands, this is an uncomfortable prospect; thus, it may not be surprising that so few have sought to engage in genuine debate about these
extensive landscapes. All of this suggests an as yet unrealised potential for transformed governance, in part because of a focus on what existed in the past and what feels timely in the present. Now is the time for debates that move beyond superficial public opinion to informed public judgement, based on information about what is to come.

Alvars in Estonia

Estonia provides a very different social and ecological context from that of the UK, as a country whose culture is associated with rural and natural landscapes and concern for local environmental issues. It is a country with rich natural heritage, being known for having some of the most extensive natural areas in Europe. Over one-fifth of the country is covered in bogs and approximately half of the country is covered in forest, in contrast to the mere 13% tree cover in the UK. This case study, however, focuses on alvars, which are unique, species-rich, semi-natural grassland ecosystems that exist primarily in Sweden and Estonia. Estonia is home to one-third of the alvar grasslands in Europe, but these grasslands have faced significant challenges on account of abandonment and shifting agricultural practices over the past 80 years. This research focused in part on the LIFE to alvars project, a project to restore 2500 hectares of alvar grasslands in the West Estonian archipelago, which is one of the UNESCO biosphere reserves, noted earlier, and the only such reserve in Estonia. The research took place in 2018, near the end of the project, which ran between 2014 and 2019, and was led by the Environmental Board of Estonia and funded under the LIFE programme, the European Union’s funding instrument for the environment and climate action (LIFE to Alvars n.d.).

The project was conceived on account of the fact that alvars are not only under pressure from changing land use and management driven by socio-economic and political factors, but are also under further stress from climate change. As a cultural landscape, there are both biodiversity and social objectives in the reserve:
• Become a pilot area for a sustainable economy using the natural environment and natural resources;
• Preserve biodiversity;
• Preserve and showcase the islands’ cultural heritage;
• Be a research, monitoring, and training centre that supports the green economy and active cooperation in achieving the objectives of the reserve (Jallon 2019)

Alvars occur on thin, lime-rich soil or limestone bedrock. They have been formed over several centuries by hay production and grazing; however, the extent of the grasslands dramatically decreased following the Soviet occupation in World War II. Although the nature of the island had undergone a number of changes due to human settlement and agriculture over the previous millennia and centuries (Jallon 2019), it was during the 1940s that the alvars were abandoned due to the socio-economic and political shocks that changed the way people used the land. There is a great deal of literature on how the rise and fall of the Soviet Union led to transformations for biodiversity as well as for cultural landscapes in former Soviet Socialist republics, in part driven by shifts from state-based to market-based agriculture (c.f. IUCN 1996; Prishchepov et al. 2012; Mihók et al. 2017). The story of abandonment and decline of the alvars in Estonia is familiar in this respect.

Nearly every interview and document that discusses the transformation of the alvars refers to the period of Soviet occupation, and how the policies enacted during that time had a profound impact on the Western Estonian islands, where these alvars are found. In addition to forced migration from the islands, the establishment of collective farming led to the disappearance of small farms. The thin soil means alvars are not very productive for intensive agriculture, so with the changes came abandonment and the loss of the traditional means of farming that maintained the alvars. The result was nothing short of a social and ecological transformation in this landscape. The extent of alvar grasslands fell from 43,000 to 8000 hectares and became more fragmented over that time period, with less than a third of these now actively managed (LIFE to Alvars n.d.; Helm et al. 2006; Photopoulos 2017). Those that are left have lost fewer species than expected, suggesting that there is still unpaid extinction debt
that will lead to further losses if this is not taken seriously (Helm et al. 2006), and a closer look reveals reduced genetic diversity due to, in part, the fragmentation (Helm et al. 2009). Interviewees discussed how abandonment led the unmanaged remnants of these species-rich grasslands to become overgrown with juniper in the first successional stage, followed by Scots pine. This was caused, in part, by some areas being repurposed as pine plantations, although this was met with varying levels of success given the conditions. Interviewees noted that some of the areas restored for the project had 80–100% juniper cover, more than double of what would have been seen previously.

The LIFE to alvars restoration has reportedly been a success on a number of different fronts. It more than doubled the area of managed alvars in Estonia. There have been increases in biodiversity in the restored alvars, and species thought to be new to Estonia have been identified. The restoration was completed faster than expected due to the mechanical methods used, which were adopted from Swedish alvar restoration practices. Another factor was that the seed bank in the alvars was still healthy, so all that was needed was to clear the areas for the native species to regrow. This is certainly not a given in grassland restoration projects, particularly in fragmented landscapes and those that have undergone transformation (Bakker and Berendse 1999). It may be that the scale of the project and increased connectivity helped landscape-scale dispersal of the plants (Aavik and Helm 2018). Given this success, it suggests the overgrown systems that replaced the alvars over the last 70–80 years are not novel ecosystems, as restoration of the grasslands was relatively straightforward in a technical sense.

It is here where the importance of cultural severance and broader socio-economic trends come into play. The socio-economic dimension was central to this project, and this was supported by financial assistance to ensure a return to the land was viable. The project produced two reports on the socio-economic impacts, which found several promising results in terms of tourism and awareness of alvars, and it won a socio-economic impact award in 2018. Interviews in 2017 with 27 actors revealed a number of positive outcomes, including expansion of restoration expertise and opportunities for local business and an enhanced sense of identity and connection to the landscape, as it was returned to its more
open state (Hog 2017). Ultimately, the project seems to have gone some way to addressing cultural severance, providing the opportunity to return to more traditional farming methods that maintain the alvars. Interviewees remarked on how it also attracted new farmers, who were drawn in by the prospect of a rural lifestyle where they could farm sustainably. Prior to the project, farming these areas was financially unviable, but the project brought down the barrier of initial investment. As one interviewee said:

For example, if you rent 10 hectares of land from a private landowner, you will pay rent about EUR50. It's average price, about EUR50 per hectare per year. But in order to receive the [EU] agri-environment subsidy for this land you need to spend, if it's an overgrown area, an average EUR1700 to clear the area from the shrubs, which means if you receive EUR250 after for the management, it's a really long time to earn this back. So, if somebody says, oh, we will pay for the shrub clearing, it's a really huge thing for this farmer because it's this investment is really high

The need to maintain subsidies was noted in the initial socio-economic analysis, as otherwise this form of farming was still seen as unprofitable. However, the economic impact on farmers was inconclusive due to a number of challenges in obtaining data (Jallon 2019).

There are, however, a number of evident and potential future tensions. First, it is not clear whether the return to managing the alvars will be maintained now that the project is complete. So long as EU subsidies remain, it may be possible now that the land is cleared. Whilst nothing comparable to Brexit currently looms on Estonia’s political horizon, it is part of the EU and thus subject to many of similar drivers of change. For example, there is still the danger of decreased funding for conservation, particularly in light of the predicted global recession, exacerbated by Covid-19 lockdowns and other socio-economic changes in Europe. The project was not renewed, and if these landscapes are further impacted (e.g. by the removal of agricultural payments, reductions in tourism), it is quite possible that some of these grasslands will no longer be actively managed. The project has been successful, but it is still somewhat fragile, as the ultimate drivers of cultural severance have not disappeared. From the perspective of adaptive capacity (Domain 5), it would be wise to implement a number of other measures to build redundancy into the
system, as well as mechanisms that allow conservationists to spot changes in management, biodiversity, and socio-economic conditions that compromise the sustained success of the project. How this will be done with current levels of resourcing is not clear. This might include additional incentives or policy tools (Domain 4). There was evident enthusiasm from interviewees and in the project documentation for seeking more opportunities to build a green economy around the alvars, including meat from the grasslands and marketing the island as a sustainable tourism destination.

A second theme that emerged, particularly in interviews, relates to cultural ideas about what the landscapes on these islands should look like (Domain 2), which ultimately impact whether the alvars will continue to be maintained in their species-rich state. As noted previously, the idea of what landscapes should look like is subjective, and this does not always coincide with high biodiversity values. In the case of these alvars, it is perhaps a happy coincidence that what is rooted in cultural tradition is also high in biodiversity. Yet many studies of cultural landscapes find differences between perceptions of different generations. For an individual, conservation is often about keeping things as they were when you were young. While many older residents felt that the removal of shrubs and trees was returning the landscape to the way it should be, this was because it was still in living memory for some of them. For younger generations, dense vegetation was the ‘normal’ state of the island. It is perhaps no surprise, then, that there was no universal and immediate acceptance. Although the machinery and removal of trees and shrubs were seen as essential for effective and efficient restoration of the alvars, the idea of both can seem incongruous to those not familiar with such restorations. Not only was this viewed as disruptive and inconsistent with the character of the place for some residents (Jallon 2019), it was not always in line with perceptions of the landscape:

The people who are older, they remember how it used to be old, it was grazed, there were more people on the island. But the younger generation, they like it how it is now. They can’t think what it will feel like, a small cottage next to the seaside and they want to have privacy, so everything is closed with the shrubs. So, it’s completely like the land use is completely
different. The beauty for them is to have it closed, not to have it open. I don’t think it is very easy to change that idea at all.

Another interviewee talked about how important being able to see out to the sea was for the older generation, as this was what the islands once looked like. But the younger people haven’t seen anything else but overgrown grasslands, junipers, and forests. They were actually very reluctant to agree with the restoration, and they, yes, they needed more kind of convincing. Some suggested that ideas were changing, but the socio-economic analysis was inconclusive in this regard. These issues also link to the good governance principles (Chap. 3, Table 2), as the restoration of landscapes also needs to consider issues of legitimacy and accountability to the younger generations who will hopefully be stewards of these landscapes. The idea of buffering (Domain 5) also draws attention to the need to manage some of these tensions and has a backup plan to weather some of the inevitable socio-economic and political tensions that will emerge.

These are among the big picture issues that will need to be addressed to sustain the success of the project, particularly as the alvars face further social, economic, and ecological pressures. For a country that has been through many transitions, it is also common to hear concerns about a sort of silent decline. It is common for Estonians to speak about their connection to nature, and feel that things are okay in Estonia because the environmental issues were not as bad as elsewhere in Europe. But there are larger issues at play, including cultural severance, that could prevent the changes to environmental governance that are needed to prevent ecological transformation. The LIFE to alvars project is seen as a success, but there are still many other issues for biodiversity looming in the future, including the looming extinction debt as well as whether cultural norms, values, and assumptions (Domain 2) will be able to guard against further change. There was also speculation whether the broader Estonian public feels connected to alvars. One researcher discussed how they enjoy charismatic species and ‘mystical nature,’ but they drive around and see only green everywhere:
so, they think everything should be fine, and most Estonians live in this constant knowledge that in Estonia everything is fine regarding nature. But we have also lost 95% of our grasslands and 99% of our wooded meadows.

One of the few studies that have been done on Estonian landscape preferences would suggest a preference for farmed landscapes with cultivated fields, with forest in the distance (Alumäe 2006). This study suggested a preference for open landscapes and cues of human use in those landscapes. So, it is quite possible that the biodiversity values of alvars are not considered of particular relevance for the public. More broadly, there was a sense that while Estonians may understand that rare species are important, they may not be aware there is a potential transformation on the way:

What they may not know is, we are on the verge of losing common species. And the really common species that make up the whole makings of what the nature is, and this is the threat that we are facing. And while we are focusing on the protected species, the landscapes as we know and the services as we should have them, the bio-diversity as we know it, it just collapsing as we speak. And this is why we need kind of a shift in conservation and how we approach it. We need conservation everywhere…. everything needs to be redesigned so that it supports the very matrix that holds this work together for us and for everybody else. But now we, while we are focused on specific elements of nature, we have turned out backs on even the common species.

There was a sense that the constant shifting of baselines had become normal and seemed to be accepted by the general public. Yet the outcomes of this shift were also largely imperceptible, because so much of biodiversity loss is slow but steady, and thus flies under the radar of public perception.

Despite these issues, however, there may yet be more opportunities for conservation in this case than in the British case study. Although the alvars are relative newcomers by comparison to heathlands, connections to these grasslands in Estonia have been severed much more recently. There are also opportunities to intentionally mend those connections, as preliminary evidence from the Life to alvar project suggests. For this to be truly transformative for Estonian conservation, however, there is a need…
to identify and confront wider social and economic issues, and use this success as scaffolding for further change. Just as in the UK example, however, many ideas about what ‘should’ be done to save these landscapes are grounded in part in assumptions about the importance of nature as part of the Estonian cultural identity. Cultural identity can be leveraged to achieve powerful governance transformations that affect both nature and people, either for better or for worse. Such identities are part of what transformed these landscapes in the first place. Yet, for these transformations to be legitimate, fair, and intentional, there will need to be engagement with values, rules, and knowledge and the relationships between all three. These have been identified as ‘deep leverage points’ for transforming governance, in terms of both designing systems and revisiting intent (Colloff et al. 2017). There are decision frameworks that allow explicit engagement with values in conservation and restoration (Backstrom et al. 2018), and these have the potential to reveal new objectives, alternatives, paradigms, and pathways. These will necessarily need to be context-dependent, whether in Estonia or elsewhere. However, there are insights from elsewhere about how several of these features—cultural identity, knowledge, values, and rules—can be leveraged to change governance, including the case of community-based governance of cultural landscapes in Japan.

**Satoyama Landscapes in Japan**

The themes of changing governance, conserving biodiversity, and mending the gaps left by cultural severance are evident in one of Japan’s most treasured landscapes, *satoyama*. Like the other cultural landscapes discussed here, this is a landscape with deep-rooted traditions that are thought to be central to Japanese identity. These landscapes are also internationally recognised for their dual contribution to biodiversity and human livelihoods through the *Satoyama* Initiative, established in 2010 under the auspices of the CBD (International Partnership for the

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4 *Satoyama* is only briefly covered here for illustrative purposes. For a comprehensive account, please see the references in this section, but especially Takeuchi et al. (2012) and Indrawan et al. (2014).
Satoyama Initiative 2019). The name derives from the Japanese words for home village (sato) and wooded hill or mountain (yama). As with many other cultural landscapes, *satoyama* has its roots in traditional agricultural practices that made the best of more marginal lands in a country characterised by sometimes difficult climatic conditions (e.g. typhoons, earthquakes, volcanos) (Takeuchi et al. 2012). The term is applied to the border zone between mountains and foothills and incorporates a number of different elements, including secondary woodlands, rice paddies, irrigation ponds and ditches, and pastures and grasslands (International Partnership for the Satoyama Initiative 2019). These landscapes are often used as an exemplar of sustainability, offering not just high biodiversity value and support for human livelihoods but also a range of other ecosystem services, including protection from floods and the stabilisation of hillsides (Morimoto 2011; Takeuchi et al. 2012). However, like so many other cultural landscapes, their decline tracks alongside changes following World War II. Many of these areas were abandoned, as fertilisers and fossil fuels made many of the natural resources used in these landscapes obsolete, and people increasingly moved to urban areas. Just as in the previous examples, this resulted in a loss of biodiversity as well as cultural values, as common ownership ceased and with it traditional management. Coppice woodlands became dense and overgrown and the plants that stabilised these areas disappeared, leading to soil erosion. Some areas were even cleared by the US military during the post-war occupation, or replaced with timber trees, the plantations of which were funded by government subsidies (Kijima et al. 2000). Impacted by these manifold changes, the *satoyama* became the ‘forgotten landscape of Japan’ (Takeuchi et al. 2012).

In recent years, these landscapes have seen a revival, however, attracting a great deal of local and international attention and providing some insight into how new traditions can be built in old landscapes, but within our novel modern context of the Anthropocene. The revival has been attributed in part to the community-based governance and management of these areas. The *Satoyama* initiative includes community-based institutions, local knowledge of natural resources, and a number of other indicators relating to governance among its indicators. The involvement of local communities, including indigenous communities, in the
management of secondary woodland *satoyama* landscapes, particularly in the urban-rural fringe, has been highly effective (Bolthouse 2013). The *satoyama* renaissance is thought to be driven by three factors: (1) cultural reappraisal of their value, (2) recognition that management would enhance biodiversity of these landscapes, and (3) an evident desire of a wide range of people to participate in their management (Bolthouse 2013). There are echoes in the literature on this landscape of the same ideas that were prevalent in the previous two cases, but especially in that of Estonia, as there is a great deal of discussion about how cultural values and ethics towards nature are key features of the perceived success of this revival (Morimoto 2011; Takeuchi et al. 2012; Indrawan et al. 2014; Shibata 2015; International Partnership for the Satoyama Initiative 2019). It is difficult to pinpoint exactly what fuelled this revival, of course, given the complexities of teasing out causal forces in governance research (Chap. 1), but there is some suggestion that it was fuelled, in part, by shifting narratives. The shift from embracing the commons before the war, towards individualistic management afterwards, and finally back again to an embrace of collective management represent shifting narratives that influenced how these ecosystems were perceived, valued, and governed. This was partly fuelled by effective use of narratives (Domain 1), including the coining of the term *satoyama* by a forest ecologist in the 1960s, which became a metaphor for bringing villages and hillsides back together again, painting a picture of rural decay but also the idea that these places provided a place for people to rediscover their cultural identity in post-war Japan (Bolthouse 2013). Although a similar rebranding exercise might not have worked if the country had not experienced such transformative social and economic changes, there are clues as to the power of leveraging narratives at the right time and the right place that could inform context-specific strategies elsewhere.

The community-based forest management model is enthusiastically supported by many authors, but there are debates about how well these groups enhance the biodiversity values of these secondary woodlands. Since the 1990s, thousands of community groups have formed to manage *satoyama*, fuelled again, in part, by popular narratives, with the film *My Neighbour Totoro* thought to have special cultural cache. Volunteer groups have been comprised primarily of older retirees from urban areas who are attracted by the prospect of connecting with the landscape. They
have again made these landscapes accessible to people again and revived traditional commons management in a reinvented form (Bolthouse 2013). Although it is quite common to see cultural landscapes attract those seeking a more rural lifestyle, the interesting feature in Japan is that there has not been a return to communal ownership, but there has been a return to collective management of these areas.

Most of what is said about the governance of satoyama is positive, and there is a tendency to emphasise the multiple benefits this governance system provides for people and biodiversity. However, there are some emerging critiques that are likely going to become more prominent as the initiative continues to gain prominence and the results are monitored. The most common of these is that these groups lack the skills and knowledge necessary to care for these landscapes, and that, while the revival has been good for culture, it is not as efficient or effective as expert individual management in terms of biodiversity outcomes (Kijima et al. 2000) or delivering on multiple ecosystem services (Indrawan et al. 2014). In terms of social outcomes, there have also been suggestions that social drivers of change—migration, ageing, and globalisation—have undermined some of the initiative’s objectives for improving human well-being as well (Cetinkaya 2009). There are some emerging tensions between the desire to continue the community-based form of governance and needing to involve more experts to build a robust knowledge base and have a more strategic approach combined with more innovative thinking about what these landscapes might look like into the future (Indrawan et al. 2014). As with all things in governance, it is clear that there is no panacea, and this likely applies to the age-old debate in governance about whether top-down or bottom-up governance is better. The literature on governance and transformation tends to favour the latter, and there is another body of work suggesting there is a need to ‘meet in the middle’ or work from the ‘middle out’. All of these have proven challenging in their own ways, so it is perhaps most sensible to return to the idea of fit: effective governance is likely to require a mixture of all three strategies, but these need to be at the right place and the right time.
Lessons for Elsewhere

The *Satoyama* Initiative is a wide-ranging network that reaches well beyond Japan, including the European cultural landscapes. As part of the network’s ongoing activities, there is a collation of case studies and data that look at institutional impediments and success factors for mainstreaming the concepts and approaches of these cultural landscapes into policy and decision-making (UNU-IAS and IGES (eds.) 2016). So far, the findings are similar to those already outlined in Chaps. 2 and 3 in relation to the institutional change literature, including the need to manage interplay dynamics (Chap. 2), integrate different knowledge systems, and buffer economic and political influences (Chap. 3). From this they have developed general principles that could be applicable to other cultural landscapes, particularly where they are seeking to address cultural severance whilst also delivering on biodiversity objectives and adapting to social and ecological changes. These are (UNU-IAS and IGES (eds.) 2016, pp. 7–9) as follows:

- Integrate traditional and modern scientific knowledge to find appropriate solutions for the social, political, and economic context;
- Translate, transcribe, and transform knowledge through inter- and transdisciplinary approaches;
- Foster a participatory approach to create a shared vision and identify composite or interlinked goals addressing multiple objectives;
- Foster collective efficacy, which is a shared believe in a group’s collective power to produce a desired outcome;
- Build trust among stakeholders;
- Identify relevant institutions and define roles;
- Engage higher political systems and get feedback from those systems;
- Encourage cross-learning among communities and other stakeholder for development of capacities and raise awareness;
- Establish long-term monitoring and periodic review; and
- Make sure replication efforts are flexible.
Quite a lot of what the initiative has highlighted so far is that managing cultural landscapes in novel contexts requires robust knowledge from diverse sources and institutional conditions that allow solutions that are adapted to local conditions. The subject of knowledge, and particularly experts, in responding to social and ecological transformation is the subject of the next chapter.

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