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## When Loss is More: From Managed Decline to Adaptive Release

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### ABSTRACT

Within the heritage sector there is widespread recognition that the accelerating effects of climate and other changes will necessitate reconsideration of the care of at-risk places and properties. Heritage organisations and agencies are developing new ways to identify and measure future threats, and to prioritise resources accordingly. For some designated assets, it is becoming clear, it may be necessary to manage processes of decline and transformation. Drawing on insights gathered from conversations with natural and historic environment practitioners and regulators, this paper highlights current practice and policy around managed decline, with a focus on the English context. In seeking to address some of the limitations of current approaches, this paper introduces a new conceptual framework: *adaptive release*. Adaptive release, as presented here, reflects a decision to accommodate the dynamic transformation of a heritage asset and its associated values and significance, with reference to wider landscape settings. The focus is on iterative management over extended timeframes, involving some relinquishment of control and a commitment to ongoing monitoring and interpretation. The concept of adaptive release is presented provisionally, rather than prescriptively, to expand the range of options available to natural and historic environment professionals in responding to inevitable change.

### KEYWORDS

Adaptation; transformation;  
change management;  
climate change; landscape;  
managed decline

## Principles, Practice and the Challenge of Change

In 2008 English Heritage's *Conservation Principles* set out a definition of conservation as 'the process of managing change to a significant place in its setting in ways that will best sustain its heritage values, while recognising opportunities to reveal or reinforce those values for present and future generations.'<sup>1</sup> The document's framing of conservation as change management recognised that alterations to the physical fabric of features in the historic environment would sometimes be necessary, and even desirable, in order to sustain value, stating: 'Change to a significant place is inevitable, if only as a result of the passage of time, but can be neutral or beneficial in its effect on heritage values.'<sup>2</sup> *Conservation Principles* was published in the context of proposals for major reform to

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heritage protection in England, which aimed to simplify the system of statutory protections and encourage a more holistic, landscape-based approach to conservation of the historic environment.<sup>3</sup>

Over a decade after the publication of *Conservation Principles*, the promised heritage reforms have not yet materialised, and the need to manage change successfully in the historic environment has, arguably, never been greater.<sup>4</sup> Concerns evident on the distant horizon in 2008 are now coming into sharp focus. Accelerated climate and ecological change, widespread economic instability and regulatory uncertainty present clear and potentially protracted challenges. Heritage organisations and agencies will need to face these challenges in the way they manage properties and allocate resources, and are currently developing new ways to understand and identify future threats in order to help them plan and make evidenced decisions consistently and transparently.<sup>5</sup> As an outcome of these processes, it will be possible to continue to maintain and protect some at-risk heritage features, in part or in whole; some will be flagged for adaptive reuse or relocation. Some features, however, will be harder to protect and will fall into a third category where the management of decline and/or loss may be necessary. This will not be easy. Change to architectural and landscape features on the ‘too tough to save’ end of the spectrum is likely to be variable and unpredictable and involve extensive alteration of physical form and material fabric – through processes of coastal change and erosion as well as biotic and abiotic degradation mechanisms.<sup>6</sup>

This paper addresses the situation that the heritage sector in England<sup>7</sup> currently finds itself in with regard to places and properties at the decline/loss end of the change-management spectrum. We ask why, despite widespread recognition of the need to face up to the prospect of significant and sometimes irreversible change, it is still often difficult to manage these changes in practice, and in alignment with relevant policy and legislation.<sup>8</sup> In doing so, it draws on the spirit of *Conservation Principles* to ask whether, in some cases, processes that *look like* loss and decline, on one register, may also generate opportunities for revealing new values and enhancing significance. ‘If all or part of a significant place will be lost, whether as a result of decision or inevitable natural process, its potential to yield information about the past should be realised’, states Principle 6.3.<sup>9</sup> This recognition of the possibility that information may be yielded through attending to ‘inevitable natural process’ offers a useful starting point for the ideas we discuss in this paper. The next step in preparing to respond and adapt to the challenges of the 21<sup>st</sup> century, we argue, is to combine openness to the potentially beneficial aspects of heritage change with a more sophisticated understanding of the relationship between natural and cultural heritage values, and how they can sustain each other.<sup>10</sup>

The reflections in this paper draw on work carried out as part of the Landscape Futures and the Challenge of Change project, a collaboration between the University of Exeter, University College London, the National Trust, Historic England and Natural England (following on from the Heritage Futures research programme).<sup>11</sup> For the past year, we have been working together to try to understand how heritage managers and regulators in England interpret and apply current policy when faced with the prospect of loss and decline in designated heritage ‘assets’, where the expectation of protection makes the challenge of managing dynamic change particularly acute. What has become clear in this work is that there is little consensus about whether current policy and legislation is flexible enough to accommodate the change-management challenge the sector now

faces. In our conversations with managers and regulators, people emphasised different aspects of relevant regulation and management practice, with some asserting the need to protect special interest and others prioritising a broader focus on sustaining significance.<sup>12</sup> There is also, clearly, a difference between statutory designation for Listing and Scheduling, with regard to expectations of maintenance and other management actions.<sup>13</sup> Finally, individuals (depending on their professional backgrounds and personal perspectives) appear to have very different comfort zones regarding the active management of (certain kinds of) change. Together, these factors can lead to a perception of regulatory inconsistency, and a related lack of confidence in those tasked with managing vulnerable assets. The project designed a series of workshops to explore these issues in more detail, with reference to specific cases, but this paper seeks to address another problem we identified in our conversations, around the language available to practitioners in their decision making and its relationship to cultures of organisational practice.

In the past decade, it has become much more common than it once was for heritage practitioners to openly discuss the need to recognise the potential for loss. An acknowledgement that in some circumstances not everything can or will be protected is now core to sector discussions about climate adaptation and risk assessment.<sup>14</sup> The practical management options available in these contexts are often limited, however, and tend to be thin on detail about the stages involved in navigating a process of 'managed loss' and relinquishment (aligned to 'managed retreat', in a coastal context).<sup>15</sup> The established treatment option of 'managed decline' was often identified in our discussions as the practice which provides the most scope for managing the deterioration of an asset when other conservation actions are not deemed to be viable. Managed decline has its origins in minimal-intervention strategies adopted for the management of ruins, and it has been repurposed in more recent policy as part of a sustainability agenda.<sup>16</sup> Guidance on managed decline usually states that steps should be taken to achieve preservation by record and then to slow or mitigate against damage and decay, as far as possible.<sup>17</sup>

The issue that we identified in our conversations with practitioners was not around the practice of managed decline, *per se*, but around the possible perception of neglect, and associated negative connotations.<sup>18</sup> Even in cases where a decision has been made to manage decline actively and intentionally, the language of 'decline' does not invite reflection on the potentially positive aspects of change. Taken together – decline, decay, loss, risk, threat, damage – the bundle of available vocabulary can act, we argue, as a barrier to productive conversations about change and make it difficult to focus attention on the (cultural and natural) processes that unfold after a decision has been made to 'let go'. In the context of risk assessment and prioritisation exercises, the focus on assets that will be 'saved' and 'lost' may overlook opportunities to enhance significance through the careful management of change.

We need language that will help us prepare to have the conversations that need to be had about heritage asset transformations, to shift dialogue into a more proactive mode, and to better describe innovative practices which are already being developed by practitioners. In response to this need, in this paper the Landscape Futures project introduces and invites consideration of a new conceptual framework, which attempts to address some of the limitations of managed decline: **adaptive release**. The concept of adaptive *reuse*, which developed out of efforts to make heritage practice more relevant and responsive to societal needs by sanctioning the adaptation of historic structures for

contemporary use, is now squarely mainstream, and an essential approach in the heritage toolkit.<sup>19</sup> In the current context, with drivers of change accelerating and the need for new forms of integrated heritage management now evident, we suggest that thinking about *release*, as well as reuse, may be a productive way to move forward. As *Conservation Principles* implies, sometimes the sector may need to be open to the ways in which processes of change (natural or otherwise) can reveal values as well as erode them. Building on this insight, adaptive release represents a step change in thinking, by foregrounding opportunities to manage change as the emergence of combined and contingent natural and cultural significance, and in doing so connect isolated heritage assets to their wider landscape settings.

## Introducing Adaptive Release

By way of an initial definition, **adaptive release** *reflects an active decision to accommodate and interpret the dynamic transformation of a heritage asset and its associated values and significance*. The accommodation of ruination has a long history in heritage management, of course, often developing as a pragmatic response to limited financial or staffing resources.<sup>20</sup> What we are proposing here is slightly different. The term ‘adaptive’ places the emphasis on iterative, reflective management over extended timeframes, involving a programme of monitoring of and learning from change.<sup>21</sup> The approach is not passive – it requires extended engagement and almost certainly some continued investment, as managers navigate uncertainty and explore different ‘adaptive pathways’.<sup>22</sup> The term ‘release’ implies some relinquishment of control, and a willingness to accept uncertain outcomes and messy change trajectories, cutting across natural and cultural heritage categories and designation frameworks. Adaptive release is broadly based on a principle of non-intervention, but it does not rule out targeted intervention where appropriate. The focus is on process, not on the achievement of a specific state, and the management end point often will not be known, or indeed may change over time. We present the concept of adaptive release provisionally, rather than prescriptively, in hopes that it will expand the range of options available in responding to inevitable change and help natural and historic environment professionals find common ground in their discussion of appropriate adaptation actions, particularly in landscapes with multiple protective designations.

Adaptive release builds on recent work in heritage studies on how memory-practices can be sustained by the loss or destruction of forms of heritage, as well as by their preservation and persistence.<sup>23</sup> In *Curated Decay*, this insight is linked to the selective ‘release’ of heritage materials to allow for their incorporation into ecological and other systems: ‘We need ways of valuing the material past that do not necessarily involve accumulation and preservation – ways that instead countenance the release of some of the things we care about into other systems of significance’.<sup>24</sup> Although the concept of curated decay has opened up discussion and debate in the sector, and informed proposals for high-profile sites such as St Peters Seminary, Cardross,<sup>25</sup> it was presented in the spirit of reflection, rather than as a roadmap, and has an indirect relationship to practical management guidance.<sup>26</sup> In related work, adaptive release resonates with

recent proposals for 'autonomous adaptation' in heritage sites affected by climate change:

[T]o accommodate various forms and stage[s] of transformation of heritage in an era of climatic change, changes in preservation policy are needed ... [A] comprehensive approach to adaptation ... enables not only a focus on remembering heritage values through persistent adaptation (preservationist paradigm) but also a focus on discovering transitioning heritage values through anticipatory and autonomous adaptation (transformation paradigm).<sup>27</sup>

As suggested above, however, while adaptive release can perhaps be aligned with a 'transformation paradigm', 'autonomy' is not necessarily the goal – with the emphasis instead on developing new ways of caring for heritage features in the space between autonomy/abandonment and control/intervention (and, by extension, nature and culture). Certain aspects of existing practice, such as the soft-capping of walls and the provision of habitat in built structures, offer a potentially useful precedent for this kind of hybrid management (although the focus on such practices at present is perhaps more about effective consolidation and compliance with mitigation measures than a commitment to integrated management).<sup>28</sup> The 'active abandonment' of historic undersea vessels for delivery of wider public and environmental benefits is one noteworthy example of a considered approach to managing the inevitable loss of historic fabric in collaboration with natural processes.<sup>29</sup>

If the concept of adaptive release exists in productive relation to adaptive reuse, in a built heritage context, it also links conceptually to core concepts in ecology and nature conservation. Theorisations about 'release' as a generative stage emerged from studies of ecosystem dynamics, proposing that ecosystems should be understood as adaptive systems that change over time, with phases of growth and conservation followed by periods of release (or 'collapse') and reorganisation.<sup>30</sup> The concept has since been taken up by social scientists working on climate change adaptation and resilience, to highlight how apparent collapse may be an opening to creative recalibration.<sup>31</sup> Adaptive release works, in this sense, as a bridging concept, and opens up opportunities to bring together natural and historic environment perspectives on adaptation and change. In a natural environment context, the adaptive management of dynamic change is standard practice, as populations and habitats shift in response to various drivers. Some of this orientation could productively be translated for application in historic environment contexts, within an adaptive release framework.<sup>32</sup> In other areas, the approach may help identify and address parallel concerns – around, for example, the shift from the management of discrete 'features' (in Sites of Special Scientific Interest – SSSIs) and discrete 'assets' (on the National Heritage List for England – NHLE) to allow for a focus on emerging values and significance within a broader landscape setting.<sup>33</sup> Common ground could also be found in the way that adaptive release may encourage 'portfolio' or 'collections' thinking, with the significance of individual features/assets contingent on wider landscape networks and consideration of relative scarcity and abundance.<sup>34</sup> Finally, mutual benefit may arise from sharing the different temporal scales of thinking associated with cultural and natural heritage – looking back and looking forward to contextualise decisions with regard for multi-generational pasts and futures.

In a historic environment asset managed through adaptive release, some emerging values may be 'natural' (e.g. increased biodiversity; carbon sequestration; natural flood management; habitat creation) and some 'cultural' (e.g. appreciation of the aesthetics of ruination; tangible evidence of cycles of dereliction and shrinkage; interpretation of histories of materials extraction and construction).<sup>35</sup> In some contexts, trade-offs will need to be considered, as the loss of integrity in a cultural feature facilitates, for example, the recovery of natural processes and benefits. Ideally, however, opportunities would be sought to cut across these categories, and to make legible the cultural significance of seemingly natural features (and vice versa).<sup>36</sup> On the British Isles, human activity has shaped landscapes and waterscapes, and their biodiversity, over millennia.<sup>37</sup> The reality of this deep-time entanglement and landscape co-production allows us to view adaptive release as an extension of this history of coexistence, consistent with historical patterns of interaction – rather than as an assertion of autonomous nature.

Certain plants and animals will take advantage of the withdrawal of intensive management, and the stories about why they are there, and where they came from, are often about people as much as they are about 'nature'. Recent work in ecological archaeology, for example, has revealed how nettles and raspberry bushes index the remnants of abandoned Second World War Luftwaffe camps in far north of Norway.<sup>38</sup> Research on plant communities associated with industrial landscapes and the microhabitats provided by different cultural heritage materials also provides opportunities for integrated interpretation.<sup>39</sup> During the transitional phases associated with an adaptive release approach, such interpretation would counter the potential perception of neglect as architectural features gradually become archaeological (and ecological). This transition is one that landscape archaeologists are already familiar with, given their understanding of past abandonment processes, and their wider emphasis on setting connectivity, continuity and landscape character – rather than persistence of discrete features.<sup>40</sup> Adaptive release could work to encourage adoption of these perspectives more widely in relation to built heritage (arguably one of the aims of the shelved Heritage Protection Reform).<sup>41</sup>

## Debating and Developing Adaptive Release

Adaptive release will only be appropriate in specific circumstances that meet certain criteria, and where managers are committed to ongoing monitoring, active interpretation and iterative identification of emerging significance. It will require support for sustained and meaningful engagement with communities of interest, given that identifying and understanding current and future values is a shared process that requires deliberative dialogue and considered negotiation. If applied in cases where a decision has already been made to manage the decline of an asset, adaptive release could focus attention on opportunities to carry out habitat surveys or host community archaeology projects, in collaboration with local people and organisations. It has a potential application where a decision to change land use to enhance biodiversity or ecosystem services (afforestation, wilding, regenerative farming) will have a knock-on effect on cultural heritage assets and designed landscapes. Here, adaptive release could help managers interpret current management direction in relation to historic land use practices, and as part of a continuum of change with a trajectory leading to sustainable landscape futures.<sup>42</sup> Adaptive release also has potential value in places where accelerated coastal processes



are likely to result in incremental or punctuated impacts on the structural integrity of assets. A decision to apply an adaptive release approach in advance of anticipated damage – and to carefully describe likely tipping points – may create opportunities to communicate with affected communities about inevitable change and encourage a proactive rather than a reactive response.<sup>43</sup> It also could provide a structure within which a land manager or heritage provider can actively assess and make decisions about what it is possible to retain, and for how long they will be able to continue to safely provide access. In most of these situations, the capacity to manage a process of adaptive release would rely on a willingness to coordinate policy and expertise across natural and historic environment sectors (and regulatory authorities), coordination which can be difficult to achieve at present.<sup>44</sup>

While acceptance of inevitable change and evolving significance is core to the approach set out in *Conservation Principles* (and a key recommendation for the heritage sector of the Heritage Futures research programme<sup>45</sup>) the fit between the concept and existing historic environment designation frameworks is less clear. Adaptive release may, for example, involve management of a listed asset to allow for a gradual transition from primarily *architectural* interest to primarily *archaeological* interest, as change ‘releases’ new narrative and interpretive opportunities. In such a situation, there may need to be a commitment up front to continued designation, to ensure that adaptive release is not applied cynically to justify neglect (and to facilitate de-listing and removal of development prohibitions). It is not clear that current designation practice could accommodate this kind of anticipatory revaluation. Anticipation of the emergence of new interests through climate (or other) change is more common in natural environment contexts: Natural England’s policy allows for ‘re-notification’ of interest in (SSSIs) as they undergo change (climate-driven or otherwise) and new interests emerge, and this provision is currently being strengthened through a series of proposed reforms.<sup>46</sup> In our preliminary discussions with practitioners, a range of existing tools were cited as possible devices for managing adaptive process in the historic environment, including Heritage Partnership Agreements and Conservation Management Plans, but, for the most part, their application in such contexts is untested.<sup>47</sup>

Adaptive release will not involve ‘letting go’ completely, but rather releasing a measure of control sufficient to open up change pathways: some light touch ‘holding on’ will be required, as will a long-term commitment to iterative engagement. In most sites appropriate for consideration under this approach, eventual loss is likely to be preceded by decades of partial persistence, and new mechanisms would need to be found for resourcing ongoing activity. In some cases, adaptive release may be a temporary phase preceding adaptive reuse, as values associated with a site change over time and other uses eventually become viable. During a release phase, interpretation could involve experimentation with virtual story-telling and augmented reality applications to help people understand the trajectory of change, and to animate the evidence gathered through recording.<sup>48</sup> It may be useful to define a ‘watching brief’ for sites managed for adaptive release, similar to that used in development-led archaeology, in which irrevocable change is accepted and the role of the practitioner is to monitor and to intervene when there is potential to deliver public benefit.<sup>49</sup>

We recognise that before it is put into practice, adaptive release must be trialled and evidence gathered to inform how it might apply in different contexts, whether it could be

appropriate for particular sites and how it would be perceived by different communities and stakeholders. Such applied examples will help develop and refine the concept of adaptive release, illustrate points of tension with existing regulatory frameworks and provide guidance for practitioners seeking to work productively with (rather than eliminate) uncertainty. The concept of adaptive release has the potential to instigate and inform much-needed conversations in the UK and also internationally; and we hope this paper provides a foundation for dialogue and debate. We close by offering a series of questions for consideration:

- What are the potential drivers for change in relation to assets that might be managed with adaptive release?
- What opportunities would arise from application of an adaptive release approach in specific contexts?
- How could we translate adaptive release into practice and what tensions would need to be negotiated?
- What are the potential policy barriers and what evidence would be needed to support decision making in this space?

## Notes

1. English Heritage, *Conservation Principles*, 22.
2. *Ibid.*, 43.
3. Waterton, *Politics, Policy and the Discourses*; English Heritage, "Heritage Protection Review"; Draft Heritage Protection Bill 2008, and Chitty and Smith, *Principles into Policy*.
4. Although it could also be argued that the heritage sector has never really engaged with change adequately, and this is in itself a reflection of how conservation and preservation discourses and practices help to make their objects of conservation. For further discussion see Harrison, *Heritage: Critical Approaches*; and Harrison et al., *Heritage Futures*.
5. National Trust, "National Trust Maps Out Climate Threat to Coast, Countryside and Historic Places." <https://www.nationaltrust.org.uk/press-release/national-trust-maps-out-climate-threat-to-coast-countryside-and-historic-places> [accessed 10 May 2021].
6. Sesana et al., "Climate change impacts."
7. The scope of the work has been limited to England to allow for specificity in describing the policy environment; policy and regulation in the devolved UK nations is slightly different.
8. Which, to be fair, was not designed to address the challenges now facing the sector.
9. English Heritage, *Conservation Principles*, 24.
10. The need for more integrated management of natural and cultural heritage is now widely recognised, as evidenced in publications such as European Commission, Natural and Cultural Heritage. Some of the challenge of doing so in practice, and in applying appropriate values frameworks, is discussed in Clark, "Policy Review."
11. Landscape Futures and the Challenge of Change: Towards Integrated Cultural/Natural Heritage Decision Making (LFCC) is an Arts and Humanities Research Council (AHRC) Impact and Engagement Follow-on project in the Landscape Decisions Programme (AH/T012196/1), which developed out of the AHRC-funded Heritage Futures research programme. The authors of this paper are PI (DeSilvey), Co-Is (Fluck, Hails, Harrison, Samuel) and post-doctoral researchers (Fredheim, Blundell) on LFCC respectively. See <https://www.exeter.ac.uk/esi/research/projects/landscape-futures/>. Heritage Futures was funded by an AHRC Care for the Future: Thinking Forward through the Past Theme Large Grant (AH/M004376/1), awarded to Rodney Harrison (PI), Caitlin DeSilvey, Cornelius Holtorf, and Sharon Macdonald (Co-Is). Heritage Futures ran for four years (2014–2019) and carried out ambitious

interdisciplinary research to explore the potential for innovation and creative exchange across a broad range of heritage and related fields, undertaken by a team of 16 researchers in collaboration with representatives of more than 25 partner organisations. It set out to explore what different fields of conservation and preservation practice could learn from one another, and how they might look to develop collective responses to shared problems across the natural and cultural heritage conservation sectors (for further information see Harrison et al., *Heritage Futures*; and [www.heritage-futures.org](http://www.heritage-futures.org)).

12. Hewitson, "Disconnect Between Heritage Law."
13. Goatley and Pindham, "Heritage Assets."
14. ICOMOS, *Future of Our Pasts*; Fluck, *Climate Change Adaptation Report*; National Park Service, *Cultural Resources*; Heathcote, Fluck and Wiggins, "Predicting and Adapting"; Phillips, "Adaptation to Climate Change"; and UNESCO, *Draft Policy Document*.
15. The term 'managed loss' appears in several adaptation plans, including Harkin et al., *A Guide to Climate Change Impacts*; Daly, *Climate Change*; and HEG Wales, *Historic Environment*.
16. The 2019 English Heritage Trust Sustainable Conservation Strategy states, '... not every element of every site need be bought into "good" condition to achieve successful conservation outcomes, and some degree of deterioration or even managed decline may be necessary and acceptable.'
17. See Yorkshire Dales National Park Authority, *Traditional Farm Buildings Toolkit*.
18. Though several practitioners suggested that managed decline does not carry negative connotations, and cited examples of its positive application and potential, it can be difficult to convey this sentiment to the wider public and a decision to manage decline can carry significant reputational risk for heritage managers.
19. Plevoets and Van Cleempoel, *Adaptive Reuse*. See also Historic England, *The Adaptive Reuse*; and Historic England, *Vacant Historic Buildings*.
20. See for example Interreg Central Europe, *Guidelines of Modern Management*.
21. See for example Adger et al., "Cultural Dimensions"; Brown et al., "Empathy, Place and Identity Interactions"; Folke et al., "Resilience Thinking"; and Tompkins and Adger, "Defining Response Capacity."
22. Bosomworth and Gaillard, "Engaging with Uncertainty."
23. Harrison, *Heritage: Critical Approaches*; Harrison, "Forgetting to Remember"; Rico, "Limits of a 'Heritage at Risk' Framework"; Vidal and Dias, *Endangerment, Biodiversity and Culture*; Holtorf, "Averting Loss Aversion"; and DeSilvey and Harrison, "Anticipating Loss."
24. DeSilvey, *Curated Decay*, 17.
25. DeSilvey, *Curated Decay*; and Historic Environment Scotland, *St Peter's Seminary*.
26. Slocombe, "Curated Decay." Context, May. <https://ihbconline.co.uk/context/164/20/> [accessed 10 May 2021].
27. Seekamp and Jo, "Resilience and Transformation," 52.
28. Bullock and Ferneyhough, *When Nature Moves in*; Hanssen and Viles, "Can Plants Keep Ruins Dry?"; Powell et al., *Heritage, Natural Capital*; and Jeffereys et al., *The Contribution*.
29. Kentley, Stephens and Heighton, *Deconstructing Historic Vessels*, 7–9. It is described as a rare and costly approach, yet also 'an ingenious solution' that can deliver benefits through active management in the face of inevitable loss.
30. Holling, "Resilience and Stability"; and Holling, "Resilience of Terrestrial Ecosystems."
31. Wakefield, "Inhabiting the Anthropocene."
32. It should be acknowledged, however, that key concepts such as 'adaptive capacity' may have very different meanings in historic environment and natural environment contexts.
33. Galbraith and Stroud, "Sites of Special Scientific Interest."
34. Heritage Futures findings flagged clear potential for exchange between museums and historic environment sectors around approaches to disposal and deaccessioning. See Fredheim, Macdonald and Morgan, *Profusion in Museums*. Other relevant work includes Museums Association, *Disposal Toolkit*; Robbins, "Museum Collection"; Ulph, *The Legal and Ethical Status*; and Wijsmuller, *Deaccessioning & Disposal*.

35. Haase, Haase and Rink, "Conceptualizing the Nexus"; and Ross, "Re-evaluating Heritage Waste."
36. Fluck and Holyoak, *Ecosystem Services*.
37. University of Plymouth, "Biodiversity and land-use change in the British Isles," <https://www.plymouth.ac.uk/research/centre-for-research-in-environment-and-society-ceres/biodiversity-and-human-land-use-change-in-the-british-isles> [accessed 13 May 2021].
38. Farstadvoll, "Growing Concerns"; and Farstadvoll and Nilsen, "Naturmangfoldloven." See also Gandy, "Unintentional Landscapes," for discussion of the social and cultural significance of 'spontaneous traces of nature.'
39. See for example "Cornish Path Moss," <https://naturebftb.co.uk/the-projects/cornish-path-moss/> [accessed 13 May 2021]; and Bartolini and DeSilvey, "Making Space."
40. Robertson and Ames, "Timber Monuments." Archaeologists also appreciate that the decay process is partly responsible for producing the record, and that destruction (via excavation) is often necessary for recovering and recording it. Acceptance of change, and monitoring it, are part of the process.
41. English Heritage, "Heritage Protection Review" and Draft Heritage Protection Bill 2008.
42. Rewilding of historic parkland might, for example, draw on evidence of medieval land management practices to encourage recovery of ecological diversity and appreciation of historic land management can also help enhance understanding of existing biodiversity and ecosystem composition (see, for example, botanist Martin Allen's blog on meadow composition and local history in Tees Valley, 'The Intermingled Plot' <https://theintermingledpot.wordpress.com/about/> [accessed 13 May 2021]).
43. As an iterative approach, adaptive release has the potential to enhance cultural resilience in the face of ongoing and unpredictable changes to social and ecological systems. See Rotarangi and Stephenson, "Resilience Pivots" for discussion of how cultural values and identity are of crucial importance to cultural resilience, providing points of stability that persist despite transformations. See also Venture et al., "Articulating Loss."
44. Morel and Bankes Price, "Pathways to Engagement."
45. Harrison et al., *Heritage Futures*.
46. Natural England and RSPB, *Climate Change Adaptation Manual*; Galbraith and Stroud, "Sites of Special Scientific Interest"; Mosedale et al. "A Think Piece"; and Thomas et al., "Facilitating Dynamic."
47. One practitioner suggested that it may be possible to develop a variation of a Heritage Partnership Agreement (HPA), a transformative or transitional (THPA). One other possible model for planning around adaptive release is contained in the Natural England Preparing a Heritage Management Plan guidance, which explicitly addresses natural and cultural heritage assets in an integrated approach.
48. See DeSilvey, "Making Sense of Transience" for an example of how narrative can be used to communicate and contextualise adaptive pathways.
49. Chartered Institute for Archaeologists, *Standard and Guidance*; and Watson, "Public Benefit."

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No potential conflict of interest was reported by the author(s).

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