



Historic England

# Ecosystem Services, Natural Capital and the Historic Environment

Hannah Fluck and Vince Holyoak

Discovery, Innovation and Science in the Historic Environment



# Natural Capital, Ecosystem Services and the Historic Environment

Hannah Fluck and Vince Holyoak

© Historic England

ISSN 2059-4453 (Online)

*The Research Report Series incorporates reports by Historic England's expert teams and other researchers. It replaces the former Centre for Archaeology Reports Series, the Archaeological Investigation Report Series, the Architectural Investigation Report Series, and the Research Department Report Series.*

*Many of the Research Reports are of an interim nature and serve to make available the results of specialist investigations in advance of full publication. They are not usually subject to external refereeing, and their conclusions may sometimes have to be modified in the light of information not available at the time of the investigation. Where no final project report is available, readers must consult the author before citing these reports in any publication.*

*For more information write to [Res.reports@HistoricEngland.org.uk](mailto:Res.reports@HistoricEngland.org.uk)  
or mail: Historic England, Fort Cumberland, Fort Cumberland Road, Eastney, Portsmouth  
PO4 9LD*

*Opinions expressed in Research Reports are those of the author(s) and are not necessarily those of Historic England.*

## SUMMARY

Natural capital and ecosystem services approaches increasingly underpin policy, land management plans, research strategies, and development management decisions. Historic England needs to better understand these frameworks to facilitate policy responses, partnership working and improve support for those caring for our historic environment.

‘Ecosystem services’ can be defined as the benefits provided to society by the environment. The concept of ecosystem services is integral to the idea of ‘natural capital’ - the configuration of environmental resources and ecological processes that contribute to human welfare. These approaches allow the attribution of value – monetary and non-monetary – to elements of the environment and enable accounts of that value to be created. This ‘natural capital accounting’ is used to assess the resources necessary for human and societal wellbeing now and into the future. It also facilitates understanding of the impact of management practices upon these resources. To date the historic environment has been poorly represented in ecosystem services and natural capital accounting. Historic England’s ‘Heritage Counts’ goes some way to achieving a similar approach for the historic environment (and could potentially integrate ecosystem services and natural capital), but the challenges are many.

Currently, the historic environment is included within ‘cultural services’ (one of the four categories of ecosystem services). However, cultural services are primarily concerned with the intangible aspects of heritage (sense of place, for instance) - material role that the historic environment plays in shaping the landscapes we value is not considered.

If heritage were better included within these approaches it would be beneficial for managing both the historic and natural environment by facilitating:

- closer working with existing and potential partners and identifying areas of mutual interest
- advocacy of historic environment interests to a wider audience
- consideration of the historic environment within government and public bodies

This paper explores the applications of ecosystem services, their current relationship with the historic environment and possible future steps for Historic England and the heritage sector more broadly. Drawing on evidence gathered at a Historic England workshop and through a short survey on the topic it makes the following observations and recommendations:

- There is an appetite for better inclusion of the historic environment in ecosystem services
- Historic England are well placed to advocate for this by:
  - o Gathering examples of good practice
  - o Issuing a position statement on the relevance of the historic environment to ecosystem services
  - o Seeking opportunities for collaborative work

## CONTRIBUTORS

With contributions from Tylia Varilek

## ACKNOWLEDGEMENTS

Thanks to Jen Heathcote, Jeremy Lake, Adala Leeson, David McOmish, and Ian Oxley for comments on earlier drafts.

## CONTACT DETAILS

Dr Hannah Fluck

[hannah.fluck@historicengland.org.uk](mailto:hannah.fluck@historicengland.org.uk)

07788 900699

## COVER IMAGE

Water meadows, Lugg Valley, Herefordshire under natural flood. ©Historic England. Meadows provide many important environmental and public benefits and are part of the fabric of the historic environment.

# CONTENTS

## Contents

Introduction .....	1
CONTEXT .....	1
APPLICATIONS OF ECOSYSTEM SERVICES .....	4
Policy uses .....	4
Development management and strategic planning uses .....	5
Land management uses .....	6
Infrastructure uses .....	7
ISSUES .....	7
CHALLENGES .....	9
POTENTIAL RESPONSES FOR THE SECTOR .....	11
cross-sector workshop and survey .....	13
Potential responses for Historic England .....	13
Glossary .....	17
Bibliography .....	20
Appendix 1: Notes from Ecosystem Services and the Historic Environment Workshop .....	23
St Albans Centre, London EC1N 7AB. 7th June 2016. Workshop organised by Historic England with support from the Valuing Nature Network. ....	23
Ecosystem Priorities: the results of round table discussions grouped into key themes .....	25
APPENDIX 2: summary of survey on Historic Environment and ecosystem services .....	28
Summary .....	28
Key Findings .....	28
The survey questions .....	30

## INTRODUCTION

‘Ecosystem services’, the ‘ecosystem approach’ and ‘natural capital’ are increasingly being referred to and included in policy, land management, research strategies, and development management. Currently the historic environment is poorly represented within these approaches and the material role the historic environment plays in shaping the natural world is not considered.

This document summarises the current application of ecosystem services and the relevance of this to the historic environment; it also considers the potential for improving the way in which the historic environment is included in these approaches. The assessment builds on earlier work by English Heritage led by Dr Vince Holyoak (Government Advice Team, Historic England) (Holyoak, 2011). It also includes the results of a workshop held by Historic England in June 2016 to explore how the historic environment might be better included within ecosystem services (*see* Appendix 1), along with the findings of a survey undertaken in summer 2016 on the same topic. This document sets out the *status quo* and makes recommendations for future work to promote the integration of the historic environment into this approach.

The key issue explored in this paper is that, as currently applied, natural capital and ecosystem services do not take adequate account of the historic environment and its **material** relationship to the processes and services they describe. Consequently there is a risk that, as these approaches gain momentum in the natural environment sector, there is an increasing divergence from the historic environment sector that makes future collaboration and integrated working more challenging, particularly for areas of common ground (such as landscape, land management, designed landscapes).

## CONTEXT

Both natural capital and ecosystem services emerged as terms (*see* glossary for a definition of key terms) in the latter 20th century, but the concepts they encompass have gained momentum in the past decade, particularly with government.

The current iteration can be traced back to the United Nations ‘Millennium Ecosystem Assessment (2001-2005)’.<sup>1</sup> This set out to assess how anthropogenic changes to ecosystems affected human welfare. It also sought to establish the scientific basis for work needed to enhance the conservation and sustainable use of ecosystems and their contributions to human wellbeing. The findings of the Millennium Ecosystem Assessment were published in 2005 and were the subject of a House of Commons Environmental Audit Select Committee report (2006).

---

<sup>1</sup> Millennium Ecosystem Assessment is a collection of reports commissioned by the UN Environment Programme between 2001 and 2005 and available here <http://www.millenniumassessment.org/en/Reports.html> [accessed 24/8/2016]

Following the Millennium Ecosystem Assessment, the UK commissioned its own National Ecosystem Assessment (UK NEA) in 2009.<sup>2</sup> This was the first analysis of the UK's natural environment in terms of the benefits it provides to society and continuing economic prosperity. Part of the 'Living With Environmental Change' (LWEC) initiative,<sup>3</sup> the UK NEA was an inclusive process involving many government, academic, NGO and private sector institutions. It reported in 2011 and the findings informed the Natural Environment White Paper later that year (Defra 2011). Subsequently a follow-on phase to the UK NEEA saw additional reports published in 2014, including 'work package 5' which specifically looked at cultural heritage. English Heritage sat on the steering group for this work package and commented on the final report.

Following a commitment in the Natural Environment White Paper, the Natural Capital Committee<sup>4</sup> was established in 2012 as an independent committee to advise the Government upon the sustainable use of natural capital. Initially established for a three year period (to 2015), the NCC has a second phase from 2016 to 2020. The committee is chaired by Professor Dieter Helm.

The Government has pledged to develop full UK Environmental Accounts by 2020. This project is being led by the Office of National Statistics and Defra, with advice from the Natural Capital Committee. The result of this pledge is an increased focus upon natural capital accounting in the Defra family of organisations.

In addition to an increasing interest in natural capital and ecosystem services at a governmental level there has been a growing interest from other organisations including research councils, charities, and industry. Subsequently a number of networks have been established which seek to provide information support and training on ecosystem services and natural capital.

*Table 1: Networks and programmes promoting ecosystem services*

Programme	Scale	Summary
<i>Natural Capital Group</i> <sup>5</sup>	Scotland	The Natural Capital Group links to both the Land Use Strategy for Scotland and the Scottish Biodiversity Strategy.
<i>Ecosystem Services Community Scotland</i> <sup>6</sup>	Scotland	Started in 2014/2015 supporting collaboration between science, policy and practice to better manage Scotland's natural resources and align Scottish ecosystem research.

<sup>2</sup> <http://uknea.unep-wcmc.org/> [accessed 25/8/2016]

<sup>3</sup> This has evolved into the RIDE (Research and Innovation for our Dynamic Environment) Forum <http://www.nerc.ac.uk/research/partnerships/ride/>

<sup>4</sup> <https://www.gov.uk/government/groups/natural-capital-committee> [accessed 12/9/2016]

<sup>5</sup> <http://www.biodiversityscotland.gov.uk/doing/scottish-biodiversity-governance/natural-capital-group/> [accessed 20/3/17]

<sup>6</sup> <http://escom.scot/> [accessed 20/3/17]

<i>Natural value and Economics Group (NVEG)</i>	UK-wide	Defra led UK-wide group
<i>Natural Capital Committee</i>	UK-wide	Independent advisory committee. The second term of the committee runs from 2016 to 2020. Professor Dieter Helm continues to chair the committee, which will focus primarily on helping the government develop its 25 year environment plan.
<i>Valuing Nature Programme</i> <sup>7</sup>	UK-wide	5 year programme funded by AHRC, NERC, ESRC, BBSRC and Defra. The programme funds research and supports researchers making links with policymakers, businesses, and practitioners through Valuing Nature Network.
<i>Ecosystems Knowledge Network</i> <sup>8</sup>	UK-wide	Developed 2012 - 2014 by a partnership between the Centre for Ecology and Hydrology, the University of Exeter and Countryside, with support from Defra and the Scottish Government. Now operates as a charity with the aim of sharing ideas and information throughout the UK with regard to ecosystem services through their website, events and publications.
<i>Marine Ecosystem Research Programme</i> <sup>9</sup>	UK-wide	MERP is a collaboration between NERC and Defra providing funding to address knowledge gaps in marine ecosystem research
<i>Marine Atlantic regions network</i> <sup>10</sup>	EU Atlantic area	MARNET is an EU transnational co-operation project involving eight partners from the five member states of the Atlantic Area. The aim of the project is to create an EU Atlantic marine socio economic network that will develop a methodology to create and collate comparable marine socio-economic data across the Atlantic regions and to use this data to support marine socio economic development initiatives along the Atlantic Area.
<i>OSPAR ICG-Economic and Social Analysis</i> <sup>11</sup>	North-East Atlantic	Group for OSPAR members with the purpose of facilitating knowledge exchange to help meet European Commission Marine Strategy Framework Directive requirements for the assessment of the economic use of the marine environment.

<sup>7</sup> <http://valuing-nature.net/> [accessed 25/8/2016]

<sup>8</sup> <http://ecosystemsknowledge.net/> [accessed 25/8/2016]

<sup>9</sup> <http://www.marine-ecosystems.org.uk/> [accessed 20/3/17]

<sup>10</sup> <http://marnetproject.eu/> [accessed 22/3/17]

<sup>11</sup> [http://www.ospar.org/site/assets/files/7437/tor\\_icg-esa.pdf](http://www.ospar.org/site/assets/files/7437/tor_icg-esa.pdf) [accessed 22/3/17]



<i>Natural Capital Coalition</i> <sup>12</sup> (NCC)	World-wide	‘A unique global multi-stakeholder collaboration that brings together leading global initiatives and organizations to harmonize approaches to natural capital’. The NCC evolved from the earlier TEEB (The Economics of Ecosystems and Biodiversity) for Business Coalition established in 2012, comprising representatives from governments, NGOs and businesses.
<i>Ecosystem Services Partnership</i> <sup>13</sup> (ESP)	World-wide	A worldwide network of institutions and individuals established in 2008 which aims to enhance the science and practical application of ecosystem services. It is currently coordinated by the Environmental Systems Analysis Group and supported by the Foundation for Sustainable Development (Wageningen University, the Netherlands).
<i>Biodiversity and Ecosystem Services Network</i> <sup>14</sup>	World-wide	‘Capacity building network of networks’ hosted by the United Nations Development Programme Global Policy Centre on Resilient Ecosystems and Desertification (UNDP GC-RED) providing advice and support on Ecosystem Services and biodiversity in a policy context.

## APPLICATIONS OF ECOSYSTEM SERVICES

Ecosystem services is gaining momentum as a way of communicating the value of the environment in both policy and business contexts (Haines-Young and Potschin, 2008a; UK NEA Follow-On, 2014; UK NEA, 2011; BSR, 2013). Those uses of greatest relevance to Historic England are explored here with explanation of the impact of inadequate inclusion of the historic environment.

### Policy uses

Further details on the background to the UK government interest in ecosystem services can be found in Holyoak (2011) however a summary is presented here.

Following on from its 2005 Sustainable Development Strategy, the UK Government (HM Government, 2005) identified a strategic approach to natural resource protection and environmental enhancement as one of four priority areas. Consequently an ‘ecosystems approach’ was developed, resulting in an introductory guide to valuing ecosystem services (Defra 2001a) and an action plan intended to help embed an ecosystems approach in policy and delivery by both Defra and its partners (Defra 2007b). The rationale behind this work was that - in line with the principles of the UK Sustainable Development Strategy - government policy

<sup>12</sup> <http://naturalcapitalcoalition.org/> [accessed 25/8/2016]

<sup>13</sup> <http://es-partnership.org/about/> [accessed 25/8/2016]

<sup>14</sup> [http://www.undp.org/content/undp/en/home/ourwork/global-policy-centres/sustainable\\_landmanagement/bes\\_net.html](http://www.undp.org/content/undp/en/home/ourwork/global-policy-centres/sustainable_landmanagement/bes_net.html) [Accessed 25/8/2016]

decisions could benefit from a better understanding, recognition and reflection of the contribution of ecosystem services to economic and social welfare.

Defra also commissioned a number of research projects and case studies to develop an underpinning system of relevant economic metrics (measurables), environmental indicators, social data and other methodologies to inform decision making for terrestrial ecosystems (for example Haines-Young and Potschin, 2008b). Since 2007 Defra has adopted the ecosystems approach (which has ecosystem services at its heart) and it now underpins government policy on the natural environment. For example:

- The Marine and Coastal Access Act 2009, through a marine planning system and marine conservation zones;
- The revised strategies for upland areas and for nutrient management;
- The Rural Development Programme;
- Regulatory Impact Assessments;
- Sustainability assessments within the planning system;
- The Natural Environment White Paper;
- Conservation 21 - Natural England's strategy for the 21st Century (Natural England, 2016)
- Climate Change Risk Assessment 2

There has also been consideration as to how ecosystem services and the ecosystem approach could be integrated into Flood and Coastal Erosion Risk Management (FCERM). More recently the ecosystem services methodology has influenced the structure of the second national Climate Change Risk Assessment Evidence Report.<sup>15</sup> It is also highly likely that Defra's 25 year plan for the environment, one of the Natural Capital Committee recommendations, will be structured around natural capital and an ecosystem services approach.

In this respect ecosystem services would appear to be here to stay, and increasing in the breadth of its application, in terms of domestic policy. Inadequate inclusion of the historic environment within ecosystem services means that the case for the relevance of the historic environment to these policy areas is harder to make. For instance, within the Climate Change Risk Assessment evidence review the ecosystem services approach taken to the natural environment chapter meant that consideration of heritage issues was restricted to the 'People and Built Environment' chapter. Therefore, cross cutting concerns such as historic and designed landscapes, archaeological sites and traditional rural buildings were not well addressed.

### **Development management and strategic planning uses**

Ecosystem services approaches are being increasingly used alongside EIA and SEA, particularly for larger projects (e.g. Cottham Hall, Lancashire residential development in work commission by the Homes and Communities Agency,<sup>16</sup> and London 2012 development ahead of the Olympics and Paralympics). However,

---

<sup>15</sup> <https://www.theccc.org.uk/UK-climate-change-risk-assessment-2017/> [Accessed 12/9/16]

<sup>16</sup> Atkins and John Rowlands Urban Design commission by Homes and Communities Agency

despite calls from some quarters to explicitly include ecosystem services assessment in EIA (for example Wansbury and Haines, 2012<sup>17</sup>), when the directive was reviewed in 2012 this change was not made.

Local planning policy is also including ecosystem services. For instance, ecosystem services feature prominently in the draft South Downs National Park Local Plan<sup>18</sup>. Birmingham City also made use of the approach in development of the 'Places for the Future' draft Supplementary Planning Document.<sup>19</sup>

**The lack of inclusion of the historic environment within ecosystem services means that opportunities for integrated historic and natural environment solutions could be missed.** For instance, there are significant opportunities for integrating heritage into green infrastructure which might be overlooked. Furthermore, understanding the historic landscape character of places and the human input to their special characteristics may not be properly incorporated.

### Land management uses

Ecosystem services have been used by a number of organisations in their land management strategies. The Forestry Commission are investing in ecosystem services research,<sup>20</sup> while many AONBs (e.g. Mendip Hills AONB, Cotswold AONB, Isle of Wight AONB) and National Park Authorities are addressing ecosystem services in their management plans. The National Trust has also drawn heavily upon ecosystem services in developing their 'Spirit of Place' approach to management of their sites. The approach has also been applied to (river) catchment management (e.g. Parrett Catchment Project<sup>21</sup>).

**Inadequate inclusion of the historic environment can lead to disjointed views of landscape that may hinder, rather than encourage, integrated land management that takes into account the past, present and future of a place.** For instance, understanding the historic character of landscape can help identify the supporting services that make places special for people and wildlife.

Interestingly, in its recent response to the bid by the Lake District for World Heritage Site status, ICOMOS asked whether an ecosystems approach had been

---

<sup>17</sup>[http://www.iema.net/assets/uploads/EIA%20Articles/atkins\\_article\\_high\\_time\\_to\\_bring\\_ecosystem\\_services\\_into\\_environmental\\_impact\\_assessment.pdf](http://www.iema.net/assets/uploads/EIA%20Articles/atkins_article_high_time_to_bring_ecosystem_services_into_environmental_impact_assessment.pdf) [accessed 24/10/2016]

<sup>18</sup> [https://www.southdowns.gov.uk/wp-content/uploads/2015/08/Local\\_Plan\\_Master\\_240815\\_Whole\\_Document.pdf](https://www.southdowns.gov.uk/wp-content/uploads/2015/08/Local_Plan_Master_240815_Whole_Document.pdf) [accessed 25/8/2016]

<sup>19</sup> Since rebranded 'Your Green and Healthy City' [https://www.birmingham.gov.uk/info/20054/planning\\_strategies\\_and\\_policies/304/places\\_for\\_the\\_future](https://www.birmingham.gov.uk/info/20054/planning_strategies_and_policies/304/places_for_the_future) and [https://www.birmingham.gov.uk/downloads/download/257/places\\_for\\_the\\_future\\_draft\\_supplementary\\_planning\\_document](https://www.birmingham.gov.uk/downloads/download/257/places_for_the_future_draft_supplementary_planning_document) [accessed 24/10/2016]

<sup>20</sup> For a list see <http://www.forestry.gov.uk/fr/woodlandbiodiversity> [accessed 25/8/2016]

<sup>21</sup> See <http://www.catchmentfutures.org.uk/> and <http://www.parrettcatchment.info/> [Accessed 24/10/2016]

used. This was specifically with regard to reviewing the connection between the historic/farmed landscape and nature. Consequently there is a possible pilot project being explored by Lake District National Park to look at this issue (Holyoak, pers com 2017).

### **Infrastructure uses**

The Environment Agency has reviewed the application of ecosystem services and the ecosystem approach in its FCERM (Flood and Coastal Erosion Risk Management) schemes (Roquette, 2013). This review found it particularly useful for bringing together different parts of the Environment Agency, particularly for larger scale schemes, in order to understand the impacts and full benefits of the proposals.

The impact of inadequate inclusion of the historic environment within ecosystem services is similar to those described above – missed opportunities for highlighting shared concerns and integrated solutions.

## **ISSUES**

In most uses of ecosystem services the historic environment is included within 'cultural services'. **However, the role of the historic environment in making up the fabric of the 'natural' environment has rarely been considered within the ecosystem services discussion. It has similarly been absent from natural capital.** The fact that the natural environment in the UK is the result of millennia of human activity and interaction has not equated to recognition of the historic environment as a 'supporting' or 'provisioning' service.

The Millennium Ecosystems Assessment (MA) defined cultural services in limited terms as to do with recreation, education and aesthetic values. Defra's subsequent adaptation of this model (Defra, 2007a; 2007b) was explicit in defining cultural services more narrowly still as having 'non-material aesthetic benefits only', it also discounted two areas of cultural services identified in the UN Millennium Ecosystem Assessment - cultural diversity and social relations – as having little relevance to 'the modern English context'.

Further work on behalf of Defra by Haines-Young and Potschin (2008a; 2008b) slightly widened the range of cultural services, seeing them as split between delivering recreational and aesthetic goods. The subsequent 'Provision of Ecosystem Services through the Environmental Stewardship Scheme' report (Defra, 2009) suggested that, from the perspective of trying to identify an economic value of the remaining benefits provided, there is a strong argument for grouping these services into 'at most, three categories: (a) Aesthetic values (that cover the aesthetic values that we place on wildlife and landscapes) linked strongly to Sense of Place and Cultural Heritage; (b) Education; and (c) Recreation and Tourism'.

There has been more recent work within Natural England on the breadth, depth and measurability (metrics) of Cultural Services. For instance through the Delivering Nature's Services initiative (Natural England, 2009), which resulted in three pilot studies in upland areas (Bassenthwaite, South Pennines and the South West Uplands) that sought to demonstrate how ecosystem services could drive land management decisions (Waters *et al*, 2012). The South Pennines project in particular looked at ways of expressing non-monetary values of cultural services (Flemming and Inwood, 2013), one of the eight cultural services considered in the study was 'sense of history'.<sup>22</sup>

The National Ecosystem Assessment published in 2011 took a 'place based' approach to cultural services, identifying them as 'the *environmental settings* that give rise to the cultural *goods and benefits* that people obtain from ecosystems'(UK NEA, 2011: 81). In doing so the NEA does acknowledge the way in which these settings have been 'co-produced by the constant interactions between humans and nature' (*ibid*). It does not, however, explore in any detail the relationship between the history of human-nature interactions in shaping places and the subsequent ecosystem services, goods and benefits that result other than those classed as 'cultural'.

The subsequent follow on work regarding cultural services for the NEA, published in 2014, builds on this earlier place based approach and considers cultural services as the interplay between environmental spaces, cultural values and cultural practices as providing benefits to people.

**Table 2: Cultural Services as perceived by the UK NEA Follow On report (2014)**

---

<p><b>Environmental spaces</b> e.g. beaches, woodlands, parks, gardens</p>	<p><i>and</i></p>	<p><b>Cultural practices</b> e.g. playing, exercising</p>	<p><i>shape and reflect shared/collective</i></p>	<p><b>Cultural values</b> about ecosystems</p>
<p><i>All of which interact to give rise to</i></p>				
<p><b>Cultural benefits</b> e.g. identities such as sense of place, experiences such as peace and tranquillity, capabilities such as learning a new skill</p>				

---

There are some instances where organisations have developed their own approaches based upon the ecosystem services model and have sought to incorporate the historic environment more comprehensively:

<sup>22</sup> Other cultural services explored were: local identity/sense of place; inspiration (to paint or write); escapism/getting away from it all; relaxation/tranquillity/peace and quiet; spiritual enrichment; learning and education; active recreation.

- Scottish Natural Heritage have produced a working paper (Scottish Natural Heritage, 2015; Rawcliffe, 2016) where the role the historic environment plays as a supporting service, contributing to both physical components of space and the special qualities of place, is explicitly recognised.<sup>23</sup>
- The National Trust have developed a ‘Spirit of Place’ approach which recognises the importance of integrating the cultural, natural, tangible and intangible for successful site management (National Trust, undated; Lithgow and Thackery, 2009).
- CQuel (Character and Quality of England’s landscapes) (Natural England, 2012) a project commissioned by Natural England and Defra did highlight the potential for the historic environment to be included within other ecosystem services and identified the positive role the historic environment sector could play in ecosystem service approaches: *‘Through the Expert Panel workshop there was also a strong call for the historic environment and cultural influences to be treated in the same way, i.e. as integral to the narrative of service provision. This recognises that in the English context, humans are an integral part of ecosystems and their management, and that history and past processes are integral to the assets that we have today. Indeed, all key elements of ecosystems – assets, processes, services and benefits – have developed over time, usually over long periods, and usually back into pre-modern periods. It is realised that the historic environment sector is well-placed to contribute to the ecosystem service approach to managing the environment, through an appreciation of the long term trajectories of change and an understanding of how environmental ‘assets’ came to be where they are (normally meaning how they came to be so confined), and in what form they are. ... These are important concepts to build into the thinking on ecosystem services and it is something that CQuEL will try to do as it is developed.’* (Natural England, 2010: 15)

Despite these examples, the integration of the historic environment into ecosystem services or natural capital is not commonplace. Consequently, identifying areas of common ground with the natural environment sector, and the Defra family, will become more challenging given that the importance of the historic environment in shaping and contributing to our environment is not always recognised.

## CHALLENGES

Work to date has identified the following issues and challenges to better integration of historic environment within ecosystem services.

---

<sup>23</sup> This was developed in collaboration with Historic Environment Scotland, Scottish Environment Protection Agency, Cairngorms National Park Authority, James Hutton Institute and Forest Research.

**Table 3: Challenges facing the better inclusion of heritage in ecosystem services**

<b>Challenge</b>	<b>Summary</b>
<i>Variation in ecosystem services approaches</i>	There is enormous variation in interpretations and definitions of the nature, distribution and value of ecosystem services. Any attempt to raise the profile of the historic environment within ecosystem services needs to take this diversity into consideration.
<i>Dichotomy between historic and natural environment</i>	'Ecosystem services' is often used as shorthand for the natural environment, and in the UK has been a means of justifying the resources used to conserve it and argue for more resource (Natural England, 2009). The complex relationship between people and their environment is not overtly acknowledged.
<i>More than a 'cultural service'</i>	The contribution of the historic environment is more than a 'cultural service'. Assets perceived as natural are themselves a result of human action and interaction. The challenge is to include cultural heritage examples to underpin 'provisioning', 'supporting' and 'regulating' services. This would have the additional benefit of bringing people into all aspects of ecosystem services.
<i>Diluting the arguments for the importance of the historic environment</i>	Would better integration of the historic environment into ecosystem services detract from the significance of the historic environment in its own right? To what extent should we be seeking to integrate historic environment into an approach primarily created to benefit the 'natural environment' sector? One response to the emerging work on natural capital might be to develop understanding of cultural capital in parallel. Alternatively, should we be finding ways to translate our own approaches (e.g. constructive conservation, Conservation Principles, Heritage Counts) so they can be integrated where appropriate?
<i>Language and communication</i>	There are challenges in the language used, e.g. 'conservation' is interpreted differently by ecologists and archaeologists. Definitions of culture, heritage and landscape can all vary depending upon the context and advocate. However, some consistency in terminology is promoted through 'Conservation Principles' (English Heritage, 2008).

---

*The question of scale*

Much of the work undertaken on the behalf of Defra refers to habitats, services and places as units of measurement. Depending upon one's point of view this may be either helpful or problematic: this is an opportunity to get ecologists to address landscapes, and to discuss the relationship between place, landscape and humans. However, there is concern that 'ecosystems' might supplant the concept of 'place' and become a synonym for landscape. The report 'England terrestrial ecosystem services and the rationale for an ecosystem-based approach' (Defra 2007) did nonetheless recommend that ecosystem services should be approached spatially.

---

*Attributing value*

Ecosystem services are undeniably connected to the potential to attribute value to those services flowing from the environment. This, however, presents a major challenge, particularly where that value is economic. 'Heritage Counts' goes some way to achieving this<sup>24</sup> for the historic environment, but the challenges are many. The issue of value is more closely connected to natural capital - in particular natural capital accounting - than ecosystem services. The latter in this case being more concerned with identifying what those services are, and how they relate to each other rather than their value, per se.

---

## POTENTIAL RESPONSES FOR THE SECTOR

There has not been a great deal of contact between the historic environment sector and ecosystem services. **Preliminary feedback from a workshop held in summer 2016<sup>25</sup> suggests that this is not necessarily due to a lack of interest, or even lack of relevance, but rather a lack of understanding on both sides.**

Previous work by Historic England and Natural England would seem to agree that the historic environment has something to offer ecosystem services, and that it is in the historic environment sector's interest to engage with it. However, there is currently less consensus on how best to do this. It would seem there are four, not necessarily mutually exclusive, options.

---

<sup>24</sup> <https://historicengland.org.uk/research/heritage-counts/> [accessed 9/9/2016]

<sup>25</sup> Workshop included invited speakers and round table discussion of the issues with representatives of the heritage sector and those familiar with Ecosystem Services from research, policy, land management and development management perspectives



*Table 4: Options for the heritage sector for engaging with ecosystem services*

Option	Pros	Cons
<p><b>1. Do nothing</b> Accept that historic environment is adequately represented within cultural services category of ecosystem services.</p>	<ul style="list-style-type: none"> <li>• No outlay in terms of staff time or resources</li> </ul>	<ul style="list-style-type: none"> <li>• Risks further distancing historic environment from the natural environment.</li> <li>• Increasingly challenging to highlight the importance of the historic environment within spheres that government considers to be the realm of the ‘natural’ environment e.g. landuse, landscapes, flooding, climate change</li> </ul>
<p><b>2. Better representation within existing ecosystem services structure</b> Seek better representation of historic environment within ecosystem services as it currently stands, through facilitating translation or mapping of the historic environment ‘services’ into the current ecosystem services approach.</p>	<ul style="list-style-type: none"> <li>• Works within existing framework and resources.</li> <li>• Retains distinctive role for the historic environment whilst facilitating collaboration and promoting heritage within the natural environment sector.</li> <li>• Could be immediately implemented.</li> </ul>	<ul style="list-style-type: none"> <li>• Restricted by current framework</li> </ul>
<p><b>3. Full integration with ecosystem services</b> Seek to integrate historic environment approaches fully into ecosystem services</p>	<ul style="list-style-type: none"> <li>• Securely embeds historic environment as inseparable from the natural environment.</li> </ul>	<ul style="list-style-type: none"> <li>• Risks undermining distinctive qualities of the historic environment.</li> <li>• Would require considerable resource and training.</li> </ul>
<p><b>4. Create a parallel ‘historic environment services’</b> Seek to create a parallel but comparable approach for ‘historic environment services’ or ‘cultural heritage services’</p>	<ul style="list-style-type: none"> <li>• Could be comparable and easily translatable to ecosystem services.</li> <li>• Retains distinctive character of the historic environment.</li> </ul>	<ul style="list-style-type: none"> <li>• Would require considerable time, resource and collaboration to be effective and worthwhile.</li> <li>• Would not help highlight areas of overlap between ‘natural’ and ‘historic’ environments.</li> </ul>

Assuming that some action is the preferred option, the next questions to pose are ‘what’ and ‘how’. To this end there has been preliminary correspondence with the Heritage 2020 steering group via the Constructive Conservation Working Group. Nevertheless, further discussion is needed to refine how work on this topic is to

progress, what products are needed and for which audiences in order to drive the consideration of the historic environment higher up the list of priorities.

## CROSS-SECTOR WORKSHOP AND SURVEY

In summer 2016 Historic England held a cross-sector workshop and undertook a survey looking at the historic environment and ecosystem services. A summary of this workshop can be found in Appendix 1 and a summary of the results of the survey in Appendix 2. The participants for both survey and workshop spanned a range of organisations from private, public and not for profit sectors working in the historic and/or natural environment. They also covered a range of expertise and experience with regard to ecosystem services; some had been involved in coordinating training on the subject, whereas others had not heard of the approach prior to the workshop/survey. The discussions were wide-ranging, but some key findings emerged:

- There is a real appetite for better inclusion of the historic environment in ecosystem services, from both those working in the historic environment sector and those in related fields (for instance, natural environment and social sciences)
- People do not currently feel confident in how best to include the historic environment in ecosystem services. This has led to a range of *ad hoc* solutions.
- We lack good illustrative examples of how to include the historic environment in ecosystem services.
- We also lack clear guidance about how to include the historic environment in ecosystem services. Were this to exist, there is support from those offering training in the use of ecosystem services that they would include this in their training material.
- Any work on ecosystem services must also address natural capital.

## POTENTIAL RESPONSES FOR HISTORIC ENGLAND

Superficially ecosystem services may appear to have little relevance to the work of Historic England, but its increasingly widespread use in policy, research, planning and land management initiatives means that it is becoming much more significant across government. Table 6 (below) sets out the potential relevance of an ESA to each of our strategic aims:

*Table 5: How Ecosystem Services can help Historic England achieve its corporate aims (Historic England, 2016)*

Corporate Plan Aim		Ecosystem services relevance
Aim 1	Champion England's historic environment	<ul style="list-style-type: none"> <li>• ES facilitates championing the historic environment to a wider audience (the natural environment sector, developers and policy makers familiar with the approach).</li> <li>• ES promotes a positive and constructive view of the historic environment by highlighting the beneficial services it provides.</li> </ul>
Aim 2	Identify and protect England's special historic buildings and places	<ul style="list-style-type: none"> <li>• ES facilitates identification of historic buildings and places and their special qualities to those who manage them, especially when managed by the natural environment sector.</li> </ul>
Aim 3	Promote change that safeguards historic buildings and places	<ul style="list-style-type: none"> <li>• ES identifies the special qualities of historic buildings and places, the positive value they add to people and the environment, and in doing so facilitates change that conserves these qualities.</li> </ul>
Aim 4	Help those who care for historic buildings and places	<ul style="list-style-type: none"> <li>• ES could be a useful tool for making the case for heritage, in a way that makes it relevant to a wider audience (e.g. the natural environment sector and those more familiar with that).</li> </ul>
Aim 5	Engage with the whole community to foster the widest possible sense of ownership of our national inheritance of buildings and places	<ul style="list-style-type: none"> <li>• ES helps to identify the positive benefits of the historic environment to people and wildlife, engaging a wider sense of value and relevance.</li> </ul>
Aim 6	Support the work of the English Heritage Trust	<ul style="list-style-type: none"> <li>• In so far as it is a useful tool for promoting the historic environment more widely.</li> </ul>
Aim 7	Work effectively, efficiently and transparently	<ul style="list-style-type: none"> <li>• ES provides an opportunity to promote our work and the interests of the historic environment more widely, increasing impact and thereby improving efficiency and effectiveness.</li> </ul>

There is an appetite from both the historic environment sector and the natural environment sector for leadership on how the historic environment could be better integrated into ecosystem services. Ecosystem services also presents an opportunity to promote the positive benefits of the historic environment to government, private, public and research organisations and colleagues in other fields. It is with this in mind that the following recommendations are made:

**Continue to advocate for better representation of the historic environment within ecosystem services approaches.** From research to date (including by V. Holyoak, J. Lake and other Historic England colleagues), to do nothing would risk distancing the historic environment from the natural environment. To some extent, evidence of this distancing is already visible in the fact that the Defra family is favouring ecosystem services approaches. To create a parallel ‘historic services’ or ‘cultural services’ approach, would perpetuate the largely artificial distinctions between the historic and natural environment. To seek to fully integrate the historic environment within ecosystem services would seem ambitious, given that this approach has developed over several decades. The most constructive option, therefore, would be to work towards better representation of the historic environment within the existing approach, possibly by using exemplars.

This should be achieved by:

- a. **Reviewing experiences of the sector to establish needs, concerns, challenges and opportunities for historic environment engagement within ecosystem services.** Gather evidence as to the opportunities, challenges and concerns regarding integration of historic environment into ecosystem services through survey and requests for feedback.
- b. **Producing a position statement on the historic environment’s relevance to ecosystem services.** One of the issues would appear to be a lack of clarity on the role of the historic environment in ecosystem services. A simple statement identifying the relevance of the historic environment to the provisioning, supporting, and cultural services that make up ecosystem services would go a long way to address this. This does not need to be exhaustive – the use of exemplars would suffice (see below).
- c. **Gathering case studies and worked examples of good practice for the inclusion of the historic environment in ecosystem services.** The biggest reoccurring theme from Historic England’s preliminary research to date<sup>26</sup> is a lack of clear examples. There appears to be a general willingness to try and better include the historic environment within ecosystem services approaches. However, there is also a repeatedly expressed desire to see worked examples and case studies to illustrate how this should be done.

---

<sup>26</sup> Ecosystem Services and the Historic Environment Workshop held at St Albans Centre, London on 7<sup>th</sup> June 2016. It was organised with support from the Valuing Nature Network – a five year research programme sponsored by research councils (NERC, ESRC, BBSRC, AHRC) and Defra.

- d. **Identifying quick win areas for translation and promote these as examples.** There are some areas where the relationship between the historic environment and ecosystem services is clearest. It would benefit the interests of both the historic environment and natural environment to highlight these areas. For instance, within the urban environment where the historic environment is a significant element of provisioning and supporting services.
- e. **Identifying areas within Historic England's work where ecosystem services could be referenced.** There are some areas of Historic England's work where our ability to communicate with colleagues in government and other sectors would be greatly enhanced by a clearer role for the historic environment in ecosystem services, in particular those areas that relate to Defra and its family of organisations. The Strategic Research Team are already identifying opportunities for and supporting references to ecosystem services in our own and commissioned projects.
- f. **Seeking opportunities for collaborative research into the role of the historic environment in wellbeing and its relationship to biodiversity.** Engaging with ecosystem services creates opportunities for collaboration. There are a number of projects, such as the Valuing Nature Network, which Historic England have already made contact with. There is also an interest amongst research councils, particularly NERC, for research to engage with ecosystem services.<sup>27</sup> Furthermore, research into the marine environment has already highlighted the potential relationship between marine and maritime heritage and ecosystem services (Firth, 2015), whereas the relationship between ecosystem services and health and wellbeing also opens up other possibilities for collaborative research. There is an interest for collaboration between Natural England and Historic England, whereby value may be added to projects already underway regarding Heritage Action Zones and Priority Places. Ecosystem services, and a shared interest in developing a clear role for the historic environment within this, are some of the key drivers for this collaboration.

---

<sup>27</sup> E.g. the NERC funded Biodiversity Ecosystem Service Sustainability research programme which includes reference to cultural services; NERC funding calls frequently make reference to ecosystem services.

## GLOSSARY

**Ecosystem:** An ecosystem is a unit within which living organisms interact with both each other and with their physical environment. This interaction creates a series of sometimes finely balanced relationships. Ecosystems vary greatly in size and longevity, ranging from long-term global systems such as oceans, to small, localised or ephemeral systems that exist for only short periods.

**Ecosystem approach:** The ecosystem approach is concerned with human-environment interactions and is set out in the Convention on Biological Diversity<sup>28</sup>, where it is described as “a strategy for the integrated management of land, water and living resources to promote conservation and sustainable use in an equitable way”. Amongst other things, the twelve principles articulating the ecosystem approach promote the use of an ‘ecosystem service’ framework, to describe the many benefits nature delivers to society (UK NEA Follow-On, 2014).

**Ecosystem services:** Humans can benefit from processes within ecosystems through the range of goods and services generated by those ecosystems, which are called ‘ecosystem services’. These include *provisioning services* such as food, fibre, fuel and water; *regulating services*, such as climate regulation, water purification and flood protection; *cultural services*, such as education, recreation, and aesthetic value; and *supporting services* (such as nutrient cycling, oxygen production, and soil formation) that underpin the provision of the other ‘service’ categories. The primary definition of ecosystem services in the UK stems from the UK National Ecosystem Assessment. Definitions for the four service categories within the UKNEA are set out below (table 6). For the purposes of this paper it is important to note that cultural services are defined as ‘non-material benefits’, the material contribution of cultural heritage is not explicitly recognised.

---

<sup>28</sup> The Convention on Biological Diversity was agreed in 1992 and signed by 150 countries including the UK. It acknowledges that the importance of biological diversity is about more than the organisms and their ecosystems and is also about people and their needs. <https://www.cbd.int/convention/> [accessed on 20/3/17]

**Table 6: Summary of ecosystem services as defined by the UK National Ecosystem Assessment (NEA) (2011)**

<p><b>Provisioning services:</b> The products obtained from ecosystems.</p> <p>For example:</p> <ul style="list-style-type: none"> <li>▪ food</li> <li>▪ fibre</li> <li>▪ fresh water</li> <li>▪ genetic resources</li> </ul>	<p><b>Regulating services:</b> The benefits obtained from the regulation of ecosystem processes.</p> <p>For example:</p> <ul style="list-style-type: none"> <li>▪ climate regulation</li> <li>▪ hazard regulation</li> <li>▪ noise regulation</li> <li>▪ pollination</li> <li>▪ disease and pest regulation</li> <li>▪ regulation of water, air and soil quality</li> </ul>	<p><b>Supporting services:</b> Ecosystem services necessary for the production of all other ecosystem services.</p> <p>For example:</p> <ul style="list-style-type: none"> <li>▪ soil formation</li> <li>▪ nutrient cycling</li> <li>▪ water cycling</li> <li>▪ primary production</li> </ul>	<p><b>Cultural services<sup>a</sup>:</b> The non-material benefits people obtain from ecosystems.</p> <p>For example:</p> <ul style="list-style-type: none"> <li>▪ spiritual or religious enrichment</li> <li>▪ cultural heritage</li> <li>▪ recreation and tourism</li> <li>▪ aesthetic experience</li> </ul>
---	---	---	--

<sup>a</sup>note that cultural services as described in the UK NEA specifically refer to ‘non-material benefits’

**Natural capital:** First used in the 1970s, ‘natural capital’ is used to refer to aspects of the natural environment that directly and indirectly provide value to people, now and into the future. The concept of ‘natural capital’ is closely allied to ecosystem services. The two terms are often used together but should not be confused. Natural capital refers to the ‘stock’ – or natural assets - that provide value, while ecosystem services refer to the flow of benefits (goods and services) that stock provides.

The UK Natural Ecosystem Assessment Follow On report defines Natural Capital as ‘the configuration (in time, space, functionality and/or with other capital) of natural resources and ecological processes that contributes through its existence and/or in some combination to human welfare’ (UK NEA Follow-On, 2014: work package reports 1 and 3).

The UK NEA states that ‘alongside other types of capital - including financial, physical (manufactured), human and social - [Natural Capital is] integral to our nation’s economy and contributes to society’s well-being.’

Government recognises that this underpins all other capital in our economy and society.<sup>29</sup>

**Natural capital accounting:** If natural capital is the stock of natural ecosystems that yields a flow of valuable ecosystem goods or services into the future, natural capital accounting is the process of accounting for that stock and attributing value (monetary and on-monetary) to it based upon the ecosystem services that flow from

<sup>29</sup> E.g. <http://www.ons.gov.uk/ons/guide-method/user-guidance/natural-capital/what-is-natural-capital/index.html> [accessed 24/8/16]

it. 'Balancing the books' in terms of natural capital accounting is about trying to identify the gap between the level of investment needed to secure these ecosystem services into the future, at a level that supports human wellbeing and economic stability, and current investment in such services. This is a huge task as the value of services is often hard to establish and the impact of any change difficult to measure.

The Globe<sup>30</sup> International Commission on Land Use Change and Ecosystems produced a Natural Capital Action Plan<sup>31</sup> recommending: that a ministerial position responsible for natural capital be included within parliamentary treasury departments; that ministries should develop a comprehensive set of natural capital accounts; that these accounts should be accompanied by a report outlining how policy choices would be affected by integrating the value of ecosystem services into policy decisions. In response, in 2012 the UK began the process of creating a national natural capital account coordinated by the Office for National Statistics<sup>32</sup>, working closely with Defra and guided by a 'National Roadmap' (ONS, 2012). The ambition is to incorporate natural capital into the UK Environmental Accounts by 2020.

**Payment for ecosystem services (PES):** Payment for ecosystem services is the idea that the beneficiaries of ecosystem services pay the providers of those services. "Payments for Ecosystem Services (PES) often involves a series of payments to land or other natural resource managers in return for a guaranteed flow of ecosystem services (or, more commonly, for management actions likely to enhance their provision) over-and-above what would otherwise be provided in the absence of payment. Payments are made by the beneficiaries of the services in question, for example, individuals, communities, businesses or government acting on behalf of various parties" (Defra, 2013).

---

<sup>30</sup> Global Legislators Organisation for Balanced Environment (GLOBE)– an international organisation comprising national parliamentarians from over 80 countries

<sup>31</sup> Globe International Commission on Land Use Change and Ecosystems 2010.

<sup>32</sup><https://www.ons.gov.uk/economy/nationalaccounts/uksectoraccounts/methodologies/naturalcapital> [accessed 22/3/2017]



## BIBLIOGRAPHY

Agnew, N., 1997. Preservation of Archaeological Sites: A Holistic Perspective. In *The Getty Conservation Institute Newsletter* 12.2. Available [online] [http://www.getty.edu/conservation/publications\\_resources/newsletters/12\\_2/feature1.html](http://www.getty.edu/conservation/publications_resources/newsletters/12_2/feature1.html) [accessed on 18 July, 2016].

BSR, 2013. *Private Sector Uptake of Ecosystem Services Concepts and Frameworks. The Current State of Play March 2013.*

Church, A., Fish, R., Haines-Young, R., Mourato, S., Tratalos, J., Stapleton, L., Willis, C., Coates, P., Gibbons, S., Leyshon, C., Potschin, M., Ravenscroft, N., Sanchis-Guarner, R., Winter, M., and J. Kenter, 2014. *UK National Ecosystem Assessment Follow-on. Work Package Report 5: Cultural ecosystem services and indicators.* UNEP-WCMC, LWEC, UK.

Defra, 2013. *Payment for Ecosystem Services: A Best Practice Guide*

Defra, 2011. *The Natural Choice: Securing the Value of Nature.* Natural Environment White Paper

Defra, 2009. *Provision of Ecosystem Services through the Environmental Stewardship Scheme.*

Defra, 2007a. *An Introductory Guide to Valuing Ecosystem Services.*

Defra, 2007b. *England terrestrial ecosystems services and the rationale for an ecosystem-based approach.* ADAS UK.

English Heritage, 2013. *Ecosystems Approach to Environmental Management.* Horizon Scan (internal Heritage England paper).

English Heritage, 2008. *Conservation principles, policies and guidance for the sustainable management of the historic environment.* <https://historicengland.org.uk/advice/constructive-conservation/conservation-principles/> [accessed 27/09/2016]

Firth, A., 2015. *The Social and Economic Benefits of Marine and Maritime Cultural Heritage.* The Honour Frost Foundation. [http://honorfrostfoundation.org/wp/wp-content/uploads/2015/11/HFF-Report\\_Social-Economic-Value-of-Marine-and-Maritime-Cultural-Heritage.pdf](http://honorfrostfoundation.org/wp/wp-content/uploads/2015/11/HFF-Report_Social-Economic-Value-of-Marine-and-Maritime-Cultural-Heritage.pdf) [accessed 20/3/17]

Fish, R., Church, A. and M. Winter, 2016. Conceptualising cultural ecosystem services: A novel framework for research and critical engagement. *Ecosystem Services* 21: 208-217  
Globe International Commission on Land Use Change and Ecosystems, 2010, *Natural Capital Action Plan*

Fleming, A. and H. Inwood, 2013. *Assessing and evaluating the cultural services of the South Pennines ecosystem services pilot*. Natural England Commissioned Reports, Number 128.

Haines-Young, R. and M. Potschin, 2008a. *England's Terrestrial Ecosystem Services and the Rationale for an Ecosystem Approach. Overview Report*, 30 pp. (Defra Project Code NR0107).

Haines-Young, R. and M. Potschin, 2008b. *England's Terrestrial Ecosystem Services and the Rationale for an Ecosystem Approach. Full Technical Report to Defra* (Defra Project Code NR0107)

Historic England, 2016. *Three Year Corporate Plan 2016-19*.

Historic England Heritage Counts.  
<https://historicengland.org.uk/research/heritage-counts/> [accessed 9/9/2016]

HM Government, 2005. *Securing the Future. Delivering UK sustainable development strategy*

Holyoak, V., 2011. *Ecosystem Services and cultural heritage*. Internal English Heritage paper.

House of Commons Environmental Audit Committee, 2006. *The UN Millennium Ecosystem Assessment*. First report of session 2006/7

Lithgow, K. and D. Thackray, 2009. The National Trust's Approach to Conservation. *Conservation Bulletin* 60, Spring 2009

The National Trust, undated. *Conservation Principles. Conservation Principles*.  
<https://www.nationaltrust.org.uk/features/our-conservation-principles> [accessed 20/3/17]

Natural England, 2016. *Conservation 21. Natural England's Conservation Strategy for the 21st Century*  
<https://www.gov.uk/government/publications/conservation-21-natural-englands-conservation-strategy-for-the-21st-century> [Accessed 24/10/2016]

Natural England, 2012. *The Character and Quality of England's Landscapes (CQuEL): Report on the findings of the Methodological Testing Phase (2011 – 2012)*

Natural England, 2010. *Preparing a detailed project plan for Cquel. Work Package 2: Which Ecosystem Services? Final Report*.

Natural England, 2009. *Delivering Nature's Services*.

Office for National Statistics, 2012. *Accounting for the value of nature in the UK. A roadmap for the development of natural capital accounts within the UK*

*Environmental Accounts.*

<http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/user-guidance/well-being/publications/roadmap-on-natural-capital-accounting.pdf> [accessed 22/3/17]

POSTNOTE, 2011. *Natural Capital Accounting*. Houses of Parliament, Parliamentary Office of Science and Technology Postnote number 376. [http://www.parliament.uk/documents/post/postpn\\_376-natural-capital-accounting.pdf](http://www.parliament.uk/documents/post/postpn_376-natural-capital-accounting.pdf) [accessed 22/3/17]

Rawcliffe, P., 2016. Towards a common framework for cultural ecosystem services in Scotland. *Ecosystems News* Spring 2016 <http://ecosystemsknowledge.net/sites/default/files/newsletters/pdf/EKNnews12.pdf> [accessed 20/3/17]

Rouquette, J., 2013. *Ecosystem Services and Flood and Coastal Erosion Risk Management*. NERC and Environment Agency

Scottish Natural Heritage, 2015. *A common Framework for practice and policy in Scotland. A working paper*. <http://www.snh.gov.uk/docs/A1882362.pdf> [accessed 20/3/17]

UK National Ecosystem Assessment, 2011. *The UK National Ecosystem Assessment: Synthesis of the Key Findings*. UNEP-WCMC, Cambridge. <http://uknea.unep-wcmc.org/EcosystemAssessmentConcepts/EcosystemServices/tabid/103/Default.aspx> [accessed 22/3/2017]

UK National Ecosystem Assessment Follow-on, 2014. *The UK National Ecosystem Assessment Follow-on: Synthesis of the Key Findings*. UNEP-WCMC, LWEC, UK.

Wansbury, C. and R. Haines, 2012. *High Time to bring Ecosystem Services into Environmental Impact Assessment*. IEMA EIA Quality Mark Article [http://www.iema.net/assets/uploads/EIA%20Articles/atkins\\_article\\_high\\_time\\_to\\_bring\\_ecosystem\\_services\\_into\\_environmental\\_impact\\_assessment.pdf](http://www.iema.net/assets/uploads/EIA%20Articles/atkins_article_high_time_to_bring_ecosystem_services_into_environmental_impact_assessment.pdf) [accessed 24/10/2016]

Waters, R. D., Lusardi, J. and S. Clarke, 2012. *Delivering the ecosystem approach on the ground – an evaluation of the upland ecosystem service pilots*. Natural England Research Reports Number 046

## APPENDIX 1: NOTES FROM ECOSYSTEM SERVICES AND THE HISTORIC ENVIRONMENT WORKSHOP

St Albans Centre, London EC1N 7AB. 7th June 2016. Workshop organised by Historic England with support from the Valuing Nature Network.

Attendees included representatives of natural environment and heritage sectors - as well as experts in ecosystem services - from public, private and third sector organisations. Organisations represented included: Historic England, Natural England, Forestry Commission, National Trust, Valuing Nature Partnership, Ecosystem Knowledge Network, Worcestershire County Council, Natural Resources Wales, Atkins, Fjodr, Countryside, University of Kent.

Prior to the workshop five questions were circulated. These are presented below with a summary of the answers given on the day.

### 1. What are the opportunities for integrating the historic environment into natural capital and ecosystem services?

- There needs to be mutual recognition of the need to crossover skills, so that the environmental sector as a whole can understand the benefits of different approaches (natural and historic).
- Use landscape (marine and terrestrial) as the common framework to deliver this.
- Use archaeology as a way of helping people to identify with the environment, and engage them in changing practices and behaviours to better conserve the environment in the future.
- ES is a way of mainstreaming the environment into planning.
- Collate examples of best practice – Historic Scotland etc.

### 2. What are the obstacles to this integration?

- The mind-set of different ‘silos’ within the environmental sector, which can misunderstand and misrepresent each other.
- The structures and value systems of the ‘boxes’ (a term used) within which we all work can foster and worsen this issue.
- We need a clear idea of what we want.
- There is an abundance of data but no clear signposting to where it can be obtained or what the limitations/opportunities of natural and historic data are.
- We need support for HERs.
- Recognition that once we are in the ‘cultural sphere’ we enter the world of opposing and often conflicting values – we need a clear means of capturing and understanding different ‘value systems’.

- This is an issue for professional as well as public – values can be expressed in many different ways.
- Linked to this and the data issue, we need to work upon and develop interdisciplinary interpretations of places to inform ES.

### 3. What do you think are the priorities for research?

- Evaluation emerged as a key issue in the debate.
- Regardless of/because of the issues in (2) above, we must work with others to show how the historic environment offers opportunities for human and wildlife habitats, etc. within the framework of ecosystem services and the European Landscape Convention.
- Identify available tools and show how these can be applied, and only where necessary develop new tools in the simplest possible fashion to show how ES can be applied in a fully-integrated way.
- Demonstrate how working with the historic environment can offer new ways of working.

### 4. How can the historic environment be used in practical application of natural capital and ecosystem services?

- Develop any case studies and pilots from narratives as well as data.
- Gather what is there for case studies.
- It will be implemented at the local level, so it has to be understandable.
- Take different questions – a) this landscape is historic vs. b) this is natural – what difference does it make? What happens if there is/is not an integrated approach?
- People love narratives/stories – people are the beneficiaries, so we must engage the public.
- Historic environment community needs to articulate what the outcomes are – discussion (issue raised by National Parks England) emphasised that the benefits are so much more than economic - touching on educational value, well-being, etc.
- Existing case studies would help to illustrate how the historic environment can be incorporated practically.
- We have provided and developed tools but we have not worked in showing others how to apply them – should we do more of this ourselves so they can be honed down and made applicable to different scenarios?

### 5. At what scale do you think an integrated approach is most effective? – national, regional, landscape, site – or all of these?

- All of these – it depends on the objective.
- Scale depends on what you want to achieve, really think about this.

- We must have senior management bringing threads together to achieve change on the ground.

## Speakers

Vince Holyoak, Historic England; Robert Fish, University of Kent and Valuing Nature Network; Patricia Rice, Natural England; Stewart Clarke, National Trust; Jonathan Porter, Countryside and Ecosystems Knowledge Network; Jeremy Lake, Historic England, and Emily Hathaway, Worcestershire County Council, The opportunities for settlement growth and change: national issues and local examples; Jonathan Guest, Atkins. Applying Ecosystem Services for development ; Eirini Saratsi, University of Kent. Valuing Heritage, Revealing Nature: How We Can Advance the Case of Heritage in Debates About Urban Green Space and Valuing Nature; Jill Bullen, Natural Resources Wales Sustainable Management of Natural Resources (SMNR) in Wales – the historic environment; Tim Yarnell, Forestry Commission . Helping woodland expansion; Andy Wharton, Natural England – Integrating Cultural Services into Landscape Planning; Anthony Firth, Fjordr Marine and Historic Environment Consulting, Ecosystem Services and the Marine Historic Environment;

## Ecosystem Priorities: the results of round table discussions grouped into key themes

### 1. Communication

Better communication is vital to raise awareness/understanding of the opportunities offered by better recognising the role of human agency, as this is reflected in the historic environment, in ES and Natural Capital debates. This rests on:

- A clear definition of the key question we are trying to address each time.
- A strategy for influencing senior decision takers – DCLG & DTFRM, NE, HE, EA etc.
- Using clear and easily understandable terminology that clearly defines what we mean to all participants.
- Highlighting opportunities to meaningfully integrate the historic environment and cultural services into ES.
- Making a clear case for including the whole historic environment, including the intangible.
- Exploring how to develop simple, practical, joined-up guidance, aimed at natural scientists as a priority, as a means of delivering this.
- Developing a platform for sharing and accessing data, as well as exploring synergies in the historic and natural environment. Crucial to find the right location for such a platform, so that users know where to look and access it.
- Recognising that we can only change human practices and behaviours towards the environment through people themselves. Archaeology is a human science and therefore well-placed to understand the environment as

something that includes people; through including people it can better engage them in making changes for the future.

## 2. Integration

- Continue to use 'Landscape' – including marine as well as coastal landscape - as a framework for engaging different disciplines and concepts such as ecosystem services.
- Integration of historic and natural environment – marine as well as land-based - are the starting principles.
- Use landscape (as defined in the European Landscape Convention) as an inter-disciplinary network/framework.
- Operate outside silos within organisations in order to deliver this – on a daily working basis and also a top-down/bottom-up basis.
- Mitigate risk that integration can 'downgrade' heritage - have an adequate dialogue on significance/sensitivity to ensure achieving one environmental objective should not prejudice the other.
- Consider how natural environment and historic environment strategies/assessments should be conducted together- not in parallel - for infrastructure projects.
- Use the national curriculum and other educational media teaching resources (including gaming/role playing) to develop and deliver training on the interaction of nature and human agency/heritage within the planning context.
- Emphasise the importance of environmental history in all forms of ecosystem services assessment.
- Stress that Natural Capital does not work from a static baseline.
- Develop a better understanding of how to interpret and use ES from an historic environment perspective, which can then be used to advocate and influence ES practices.

## 3. Challenges

- Obstacles include terminology – risk that people think of ES as relating to the 'natural environment'.
- Find a way of measuring value in order to prioritise management actions and to include as many scenarios as possible when considering the issues for the future.
- Understand natural capital better - stocks/shares - depletion.
- Making the historic environment an integral part of ES and Natural Capital.
- Ensure and find a way of making the historic environment part of the assessment process and an integral part of change planning.

#### 4. Application

- Need examples of successful projects that demonstrate how the historic environment can be used to deliver more benefits for Ecosystem Services. Consider also where the application of an ES approach resulted in the wrong diagnosis and cure because it failed to recognise the past role of humans in the environment.
- Review such successful cases to assess the advantages/disadvantages of different approaches and also to assess lessons learned for future application.
- Ensure that the historic environment and 'heritage' is brought into the language of marine environment/policy and practice.
- Encourage English Heritage to conduct an ES assessment of their properties to better understand the benefits it may offer in terms of interpretation and public enjoyment.
- Find a place with a suitable range of issues (Green Infrastructure?) to pilot integration of historic/natural approaches.
- Should we apply integration at different scales to better understand the issues raised for effective evaluation - from national to site specific to tell a more rounded narrative to explain and communicate and demonstrate benefits.
- Consider the development of a website/page of good practice in 'Historic Environment-informed ES'.



## APPENDIX 2: SUMMARY OF SURVEY ON HISTORIC ENVIRONMENT AND ECOSYSTEM SERVICES

### Summary

Between 30<sup>th</sup> June and 27<sup>th</sup> July 2016 Historic England ran a survey looking at people's experiences and applications of Ecosystem services with particular interest in whether and how the historic environment was being included. The survey was designed and run by Tylia Varilek, an MA student from the Institute of Archaeology at UCL undertaking a short placement with us. During this period responses were gathered from 65 individuals.

Participants were asked about their previous knowledge and experiences of ecosystem services and heritage. Although prior to the survey 77% had heard of ecosystem services only 40% had used ecosystem services and attempted to integrate the historic environment. However, there was a clear interest in learning more about how the historic environment could be better included in ecosystem services with 90% of those surveyed were either already using ecosystem services with the historic environment or may consider doing so in the future.

From the comments there do seem to be barriers to the better inclusion of heritage within ecosystem services around perception (e.g. that it is not relevant), mechanisms (that it's difficult, 'clunky') and understanding (not sure how to, 'lack of guidance').

### Key Findings

#### Background of survey participants

The survey was circulated to pre-existing contacts in the areas of heritage, land management, ecology, in private, research and public sector organisations. All those contacted were encouraged to share the survey widely with colleagues.

Unsurprisingly, given the circulation, the 65 respondents variously self-identified with all those areas of work identified in question 1: archaeology, conservation (heritage), conservation (wildlife), construction, ecology, heritage, historic buildings, landscape, charity, local authority, government department, public body/agency, private sector, other. Respondents could identify as many areas as they considered relevant so the same individual could be represented in more than one area of work but the individuals responding covered heritage and wildlife conservation interests in the public, private and research sectors.

Over half of respondents self-identified as working in the areas of Planning (37), Heritage (35), Archaeology (34); while over a third self-identified as working in the areas of historic buildings (27), landscape (22). The majority identified themselves as working for the public sector: Local Authority (including NPAs) (30), Public

body/government agency (22), Government department (2). There were respondents that identified as working in ecology (10) and wildlife conservation(11) and a few who identified as working in construction (4).

### **Knowledge of ecosystem services**

Most respondents (77% n=50) had heard of ecosystem services, but only 40% (n=26) had any experience of using ecosystem services approaches. However after a brief explanation 85% (55) of respondents said they either used it already or would be interested in using the approach in the future.

### **Experience of historic environment and ecosystem services**

On prompting 40% (26) said they had attempted to incorporate the historic environment into an ecosystem services approach. However support for including historic environment in ecosystem services was high with 90% answering that they were either already incorporating the historic environment, were definitely interested or might be interested in doing so.

Within the comments of those who had tried to or were interested in incorporating the historic environment in ecosystem services approaches there were a number of references to frustrations surrounding attempts to integrate the historic environment. Several respondents felt there was a lack of information about how to do this, one responded saying they had tried but 'the approach feels clunky'. Others reported that there was resistance or misunderstanding from colleagues about the relevance of the historic environment - one respondent describing trying to engage the historic environment in a particular project concerning strategic land management where the 'reports author would not accept that the historic environment could form part of an ecosystem approach'.

There were also positive examples where people were successfully integrating the approach including in some local authorities where the integration of natural and historic environments was reported to work well. One respondent reported already using the results of the Historic England Heritage and Ecosystem Services seminar (held at the beginning of June 2016).

## The survey questions

Q.1 What sort of organisation do you work for/how would you describe your area of work? (tick as many as are relevant) :

<i>Planning</i>	<i>Construction</i>
<i>Conservation (heritage)</i>	<i>Conservation (wildlife)</i>
<i>Archaeology</i>	<i>Ecology</i>
<i>Historic buildings</i>	<i>Public body/government agency</i>
<i>Heritage</i>	<i>Government department</i>
<i>Landscape</i>	<i>Charity</i>
<i>Local Authority</i>	<i>Private Sector</i>
<i>Other (please specify)</i>	

Q. 2 Have you heard of ecosystem services?

Yes  No

Q. 3 Have you used an ecosystem services approach?

Yes  No,  *What is ecosystem services?*

Q.4 The Ecosystem Services Approach is a framework to assess the value of the natural environment through the identification of the services it provides to humans. These services include such things as the production of oxygen, soil formation, food, fuel, climate regulation, water purification, recreation, and aesthetic values. Would you be interested in using this framework in the future?

Yes  No,  *Already do*

Q. 5 A historic environment is an environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and landscaped and planted or managed flora. Aspects of a historic environment are often considered 'heritage' by local communities. Have you incorporated, or attempted to incorporate, the historic environment or heritage into an ecosystem services approach?

Yes  No,  *I haven't used ecosystem services*

Q.6 Would you be interested in including the historic environment in an ecosystem services approach in the future? Please tick the one that most applies

*No, it's not relevant to my area of work.*

*Yes, but I need more information on how to do this.*

*No, I'm not sure how to do it. Maybe.*

*Yes, and I know how to do this. Other (please give details).*

Q. 7 We are looking for examples of ecosystem services projects that include, or could include, heritage. Would you be happy for us to contact you? If so, please leave an email address.



## **ENGLISH HERITAGE RESEARCH DEPARTMENT**

*English Heritage undertakes and commissions research into the historic environment, and the issues that affect its condition and survival, in order to provide the understanding necessary for informed policy and decision making, for sustainable management, and to promote the widest access, appreciation and enjoyment of our heritage.*

*The Research Department provides English Heritage with this capacity in the fields of buildings history, archaeology, and landscape history. It brings together seven teams with complementary investigative and analytical skills to provide integrated research expertise across the range of the historic environment. These are:*

- \* Aerial Survey and Investigation*
- \* Archaeological Projects (excavation)*
- \* Archaeological Science*
- \* Archaeological Survey and Investigation (landscape analysis)*
- \* Architectural Investigation*
- \* Imaging, Graphics and Survey (including measured and metric survey, and photography)*
- \* Survey of London*

*The Research Department undertakes a wide range of investigative and analytical projects, and provides quality assurance and management support for externally-commissioned research. We aim for innovative work of the highest quality which will set agendas and standards for the historic environment sector. In support of this, and to build capacity and promote best practice in the sector, we also publish guidance and provide advice and training. We support outreach and education activities and build these in to our projects and programmes wherever possible.*

*We make the results of our work available through the Research Department Report Series, and through journal publications and monographs. Our publication Research News, which appears three times a year, aims to keep our partners within and outside English Heritage up-to-date with our projects and activities. A full list of Research Department Reports, with abstracts and information on how to obtain copies, may be found on [www.english-heritage.org.uk/researchreports](http://www.english-heritage.org.uk/researchreports)*

*For further information visit [www.english-heritage.org.uk](http://www.english-heritage.org.uk)*

