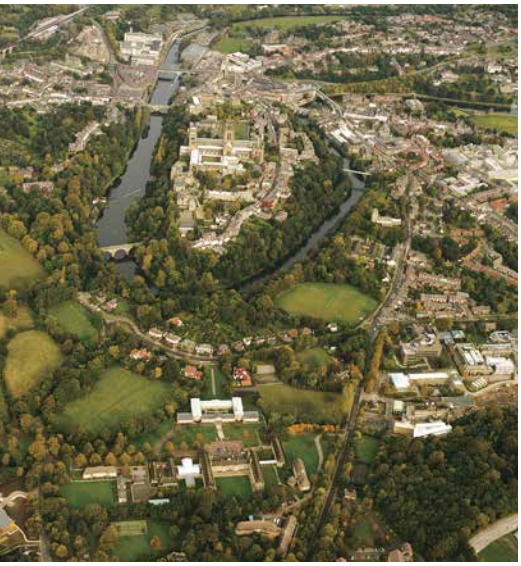
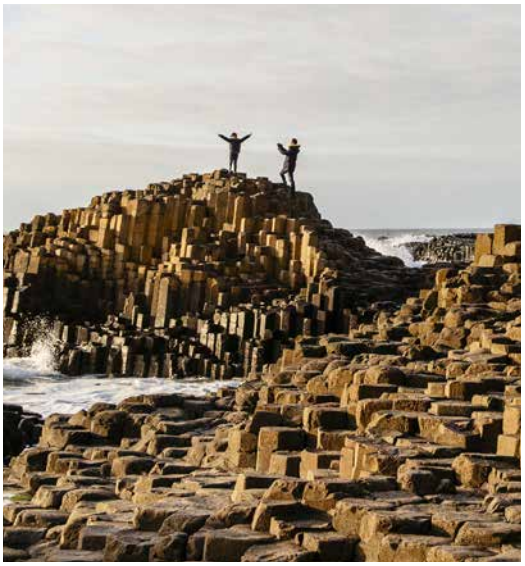
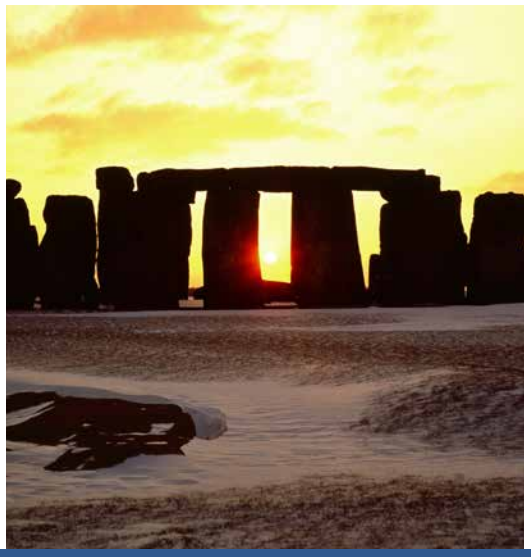
Culturally Natural or Naturally Cultural?

Exploring the relationship between nature and culture through World Heritage

Editors: Jonathan Larwood, Sarah France and Chris Mahon


NATURAL ENGLAND
National Trust
WWF
World Heritage UK
IUCN National Committee United Kingdom

Published by: IUCN National Committee UK

Citation: Jonathan Larwood, Sarah France and Chris Mahon (Eds) (2017). *Culturally Natural or Naturally Cultural? Exploring the relationship between nature and culture through World Heritage. United Kingdom: IUCN National Committee UK*

Cover photos: Durham Castle and Cathedral © J D Whitakker; Giant's Causeway © NT Images/Ben Selway; Wasdale in the Lake District © Andrew Locking; Salt's Mill in Saltaire © Chris Mahon; Stonehenge in Wiltshire © Historic England; Studley Royal water garden © NT Images/ Jonathan Pow

Back cover: Kingfisher perching on Neptune at Studley Royal water garden © Sandra Sweeney

Layout by: Miller Design, UK
Printed by: Yourprint on FSC-certified recycled paper

Available from:
IUCN National Committee UK Secretariat
c/o Grosvenor Villa
Village Road
Rhosesmor
Mold
Flintshire CH7 6PJ
United Kingdom
www.iucnuk.wordpress.com
www.worldheritageuk.org

Culturally Natural or Naturally Cultural?

Exploring the relationship between nature and culture through World Heritage

Editors: Jonathan Larwood, Sarah France and Chris Mahon

St Kilda is the only World Heritage Site in the UK inscribed as a 'mixed' site for its natural and cultural heritage © National Trust for Scotland

Contents

FOREWORDS iv

Tim Badman IUCN iv
Kerstin Manz UNESCO v
Mick Stanley Former Mayor of Ripon vi

INTRODUCTION vii

Culturally natural or naturally cultural? Exploring the relationship between nature and culture through World Heritage Jonathan Larwood and Sarah France vii

Map: The United Kingdom's UNESCO World Heritage Sites viii

1. OVERVIEW 1

Culture and Nature – two sides of the same World Heritage coin Adrian Phillips and Christopher Young 1
National Trust: an unnatural history David Bullock 9
Greater than the sum of its parts – nature, culture and the unnatural work of Historic England Vince Holyoak 13
Geodiversity – a cultural template Jonathan Larwood 16
Nature in the UK's World Heritage Sites Chris Mahon and Alma Roberts 19

2. NATURAL WORLD HERITAGE SITES 24

The Giant's Causeway: culturally natural or naturally cultural? Max Bryant 24
Is it all about the rocks? Sam Rose 26

3. CULTURAL WORLD HERITAGE SITES 30

Fountains and Studley Royal: *"In all, let Nature never be forgot"* Sarah France 30
Bath: a therapeutic landscape Tony Crouch 35
"*The beauties of the neighbourhood*…" Saltaire in the landscape Helen Thornton and Danny Jackson 38
Stonehenge and Avebury World Heritage Site: Managing a cultural landscape in all but inscription Sarah Simmonds 41
Hadrian's Wall and Hadrian's Wall Country – a heritage landscape Nigel Mills 47
Creswell Crags – from the sublime to the revelatory Roger Shelley 51
The Lake District: the case for inscription as a World Heritage cultural landscape John Hodgson 54

4. DISCUSSION AND CONCLUSIONS 59

Discussion and conclusions Jonathan Larwood, Sarah France, Chris Mahon and Alma Roberts 59

Appendix 1 Participants 62
Appendix 2 Definitions 63

Forewords

Tim Badman, Director, IUCN World Heritage Programme

The World Heritage Convention is the leading international instrument for conservation bringing together nature and culture. Yet a divide between the two fields is still often observed. Together with partners, the International Union for Conservation of Nature (IUCN) – the advisory body on nature to the Convention – have witnessed growing commitments towards bridging this gap in recent years.

The "*Culturally natural or naturally cultural?*" event in 2014, which this publication celebrates, is testimony to that. Three years on, highlighting the achievements of this event is as relevant as ever to support the momentum of key efforts currently underway to bring nature and culture practices closer. Underpinning these efforts is the acknowledgement that the Convention needs to address fully the rights of local communities and indigenous peoples.

In September 2016, IUCN held its landmark World Heritage Congress in Hawai'i, USA. One could not have picked a more fitting location to further our understanding of the integral relationship of nature and culture.

As part of the Nature-Culture Journey for the Congress, delegates joined efforts to produce a set of commitments recognising the interconnection between nature and culture. Coordinated jointly by IUCN and the International Council on Monuments and Sites (ICOMOS), with the support of US/ICOMOS, ICCROM, UNESCO and a range of partners, the journey provided a thematic programme of Congress events and gathered input into a single statement, which celebrates the diversity of perspectives on how most landscapes attest to the intertwinement of natural and cultural heritage.

In this document, titled "Mālama Honua – to care for our island Earth", the journey's participants call on the nature and culture sectors to put forward unified nature-culture solutions to support the achievement of the UN Sustainable Development Goals, the Paris Agreement on climate change, the Sendai Framework for disaster risk reduction, and Habitat III's New Urban Agenda. It also highlights the importance of interlinked nature-culture approaches to improve conservation outcomes, foster cultural diversity and support human well-being, while advancing sustainability objectives.

The Congress also marked the launch of World Heritage Leadership, a six-year joint project between IUCN and the International Centre for the Study of the Preservation and the Restoration of Cultural Property (ICCROM) and Norway. The project aims to integrate nature and culture by building the skills of practitioners working through the Convention, taking into account the totality of conservation practice so World Heritage can provide leadership to achieve innovation and excellence within the sector of conservation.

Growing commitment and interest to work towards a more unified nature-culture approach is also evident in the IUCN-ICOMOS Connecting Practice initiative, supported by The Christensen Fund, focused on building joint experience and new working methods in the work of both organisations within the World Heritage Convention. All of this work is moving forward, with a Culture-Nature Journey planned at the ICOMOS General Assembly in December 2017.

Bridging the gap between natural and cultural heritage practice remains a challenge. But it is a challenge more and more people and organisations are willing to embrace. Developing integrated nature-culture solutions will mean that together we can multiply our impact for conservation.

Kerstin Manz, Programme Specialist, Europe and North America Unit of the UNESCO World Heritage Centre[1]

Kerstin Manz © German Commission for UNESCO/Heuser

Since its inception in 1972, the World Heritage Convention has been a precursor by uniting the protection of both cultural and natural heritage in one single international treaty. While this remains true, the actual implementation of the Convention was originally based on separate sets of criteria for cultural and natural heritage and continues to enlist the expertise from two distinct advisory bodies – ICOMOS for cultural and IUCN for natural sites. Cultural and natural values have thus largely been handled separately. Consequently, broadening understanding of values and developing conservation practices for cultural and natural sites took place in parallel rather than in conjunction. The management of mixed World Heritage Sites challenged these approaches, and helped to advance common approaches to heritage conservation. Moreover, the concept of World Heritage cultural landscapes allowed us to better recognise "*the combined works of nature and humans*".

While from the international community's perspective, each World Heritage Site is recognised for very unique features, local communities generally cherish a much wider notion of values. Beyond the protection and management of the outstanding universal value, daily management of World Heritage Sites needs to ensure the protection and enhancement of all values, be it of local or universal significance, since they help to build and maintain each site's uniqueness. It is therefore important and instructive to identify those values that – though not recognised as being universally outstanding – support the site's integrity and are crucial to its understanding and sustainable management.

The conference 'Culturally natural or naturally cultural?' highlighted the necessity for a cross-disciplinary approach. UK World Heritage Site managers have accepted the experiment to study the influence of cultural heritage on their natural heritage sites and of natural heritage on their cultural heritage sites, and to identify benefits, barriers and opportunities of such an approach in management practice. It is hoped that the concept of this conference and its findings feed into international discussions so as to inspire and benefit World Heritage Sites around the world.

Whether a site is "culturally natural" or "naturally cultural" is a matter of perspective. Switching perspectives can be eye-opening and enhance the development of joint conservation and management tools. The initiative of this conference therefore contributes in a timely manner to discussions at the international World Heritage community level: connecting practices in cultural and natural heritage conservation and management is a major challenge in order to ensure that World Heritage Sites are better understood and thus better protected, and, by serving as good practice examples, make the Convention even more forceful.

[1] at the time of the Conference (and until 10/2014)

Mick Stanley,
former Mayor of Ripon

Since 2000 when my family moved to live in Ripon, I had bemoaned the lack of national promotion of World Heritage Sites. There are now 27, with the inscription of the Lake District, in the UK. Yet if you ask the public to name them I would be surprised if the majority knew of the existence of any World Heritage Site, except perhaps Stonehenge. Until 2014 there was no forum for World Heritage Site managers to talk with each other to discuss opportunities to solve common problems, and no central mechanism to promote either individual sites or all of the sites in the UK.

In 2012 at a meeting of the English Geodiversity Forum, I suggested that a meeting of UK World Heritage Sites at Fountains Abbey, Ripon, could debate the connecting role of geodiversity in natural and cultural World Heritage, and persuade sites to work in partnership. I talked with Sarah France, Conservation Manager at Fountains, and Jonathan Larwood, an old colleague from Natural England, and we agreed to stage a conference in 2014 while I was Mayor of Ripon.

My work helping draft the Geodiversity Charter for England suggested that geodiversity, the link between people, landscape and their culture, was the unifying concept that linked natural and cultural World Heritage Sites. Most UK sites are inscribed as cultural but many have both a natural and a cultural element, e.g. Durham Castle and Cathedral sit in the incised meander of the River Wear. Some are cultural landscapes, e.g. Cornwall and West Devon Mining Landscape, and one, St Kilda is mixed, but of the 27 inscribed sites, only the Devon and Dorset 'Jurassic' Coast and Giant's Causeway Coast are inscribed as natural. Significant discussion was required to challenge the classification of some, especially those cultural sites e.g. Fountains Abbey, where the human outstanding universal value (OUV) was only possible due to the locale's geodiversity

Studley Royal Park including the ruins of Fountains Abbey World Heritage Site, better known as Fountains Abbey, is inscribed as a masterpiece of human genius and an outstanding designed landscape. The genius was John Aislabie who in the second decade of the 18th century had the vision to transform the deep post glacial valley of the River Skell into the superb Water Gardens we see today. His son William inherited in 1742 when the Garden was complete, and was another visionary continuing the work started by his father, extending the garden further west down the Skell valley, and crucially buying the Fountains estate in 1767 to ensure the backdrop of the ruined abbey became part of the water garden. He 'improved' the ruins and created more vistas across the estate, and connected his 'natural' garden at Hackfall, a few miles away, with a carriage drive to Studley Royal.

The reader may wonder why the Right Worshipful Mayor of Ripon is writing this foreword. Simply it is because the development of the City of Ripon and Fountains Abbey share the common inheritance left by John and William Aislabie who were members of parliament for Ripon sitting between them for a total of more than 60 years throughout much of the 18th century, and because I am a geologist who spends many hours assessing and evaluating Cultural Heritage National Vocational Qualifications (NVQs).

Long term planning, assessment and evaluation is the key to the future of every World Heritage Site, and partnership is the crucial element in that process, for without partners no single organisation can bring the necessary expertise and experience into play to ensure the sustainability of a World Heritage Site. The National Trust at Fountains has worked in partnership over a number of years especially with English Heritage and Natural England, and has realised the importance of connecting across cultural and natural heritage interests as better understanding of those links adds significantly to the way that heritage is conserved, presented and promoted to the public as a World Heritage Site "is your local place for everyone in the world".

Introduction

Culturally natural or naturally cultural? Exploring the relationship between nature and culture through World Heritage

Jonathan Larwood, Senior Specialist – Geology and Palaeontology, Natural England and **Sarah France**, World Heritage Site Coordinator and Conservation Manager, Fountains Abbey and Studley Royal World Heritage Site

In April 2014 the National Trust and Natural England brought together 50 people (see Appendix 1) for a two day seminar at Fountains Abbey and Studley Royal World Heritage Site in North Yorkshire, to explore the relationship between cultural and natural heritage through World Heritage under the banner of "*Culturally natural or naturally cultural?*".

The meeting set out to explore the relationship between cultural and natural heritage (for definitions see Appendix 2) and highlight the influence of the natural world at 'cultural sites' and cultural heritage on 'natural sites' through a mixture of presentations from UK World Heritage Sites and other specialists in this area in the environs of Fountains Abbey.

The challenge for participants was for those coming from a cultural site to set out the influence of the natural world, and for those from a natural site to consider their relationship with cultural heritage. Specifically we considered:

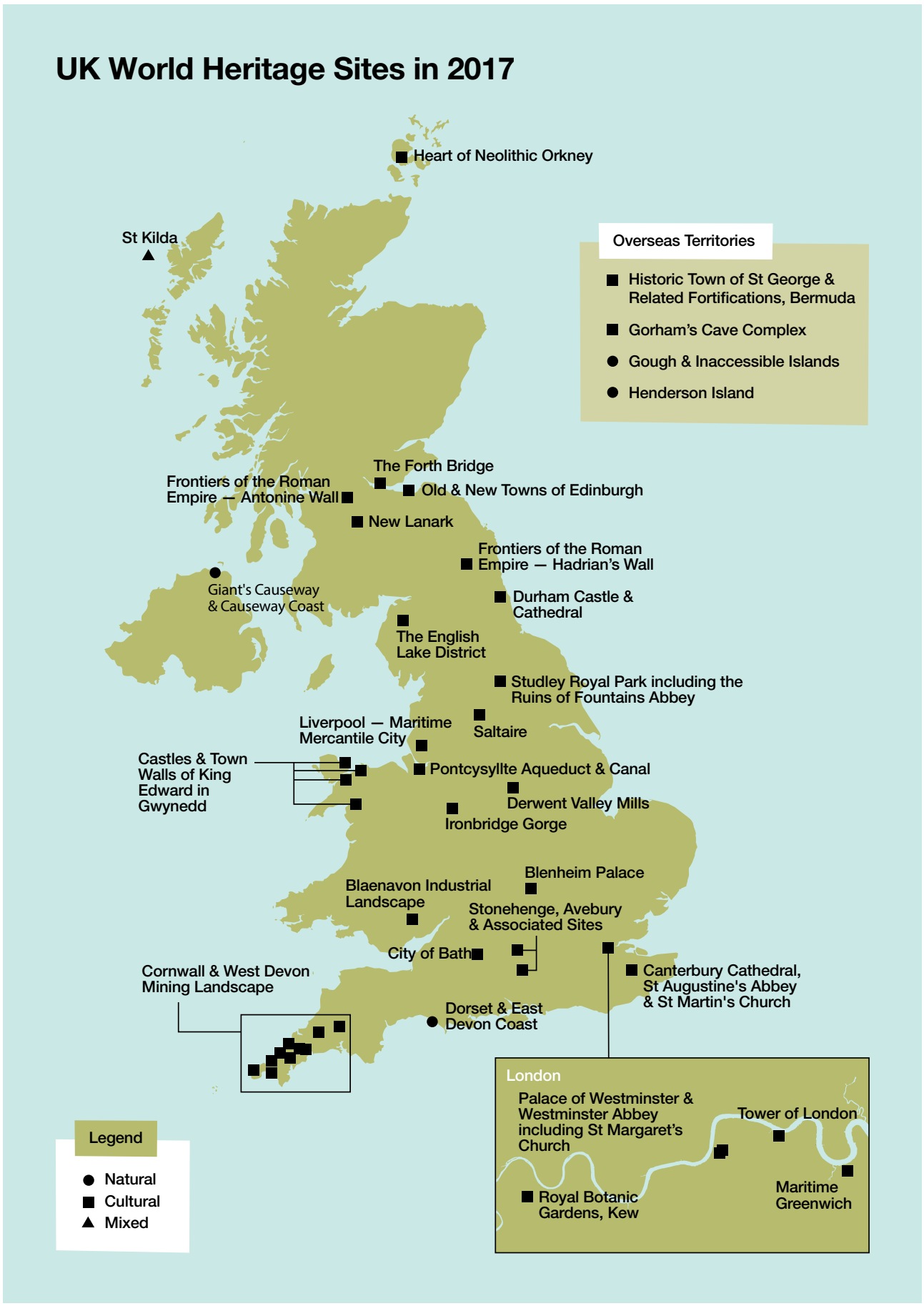
- How is cultural heritage expressed at a natural site and, vice versa, natural heritage at a cultural site?
- What difference does understanding this influence and connection make in how we understand, present, conserve and manage heritage?
- What opportunities emerge through a cross-heritage approach, and what challenges exist to taking this route?
- Can we demonstrate the practical benefits of connecting cultural and natural heritage?

The established natural-cultural ethos of UNESCO World Heritage Sites provided a good place to initiate this discussion. The National Trust, with a unique portfolio cutting across natural and cultural heritage (with substantive ownership in 8 UK World Heritage Sites), was both naturally and culturally well suited to host this meeting. Lastly, Fountains Abbey and Studley Royal World Heritage Site, following work undertaken by ourselves exploring the relationship between geodiversity and outstanding universal value (OUV) (and the surprises that emerged), and discussion with the then Mayor of Ripon, Mick Stanley (see Foreword), became the inspiration for this meeting and a worthy venue where the cultural and natural heritage of the site are intimately connected.

The UK has 31 World Heritage Sites (including 4 in UK Overseas Territories) (see Map 1) of which 12 (including cultural, natural and cultural landscapes) were represented, enabling a strongly practitioner-led discussion which was further developed as the ruins of Fountains Abbey and the Aislabie-designed landscape were explored. This report brings together the presentations, discussion and conclusions of the meeting.

Three years on we are now able to publish this work with the help of the IUCN National Committee UK, the World Wildlife Fund for Nature (WWF), and the continued support of the National Trust and Natural England. It is particularly timely as the value of better linking across cultural and natural heritage is increasingly important globally and a focus of UNESCO and IUCN. Notably the establishment of the new World Heritage Leadership programme in 2016, co-ordinated through the partnership of IUCN and ICOMOS, emphasises the integration of nature and culture. This natural-cultural relationship is now being explored through collaborative meetings, workshops and training between IUCN and ICOMOS and is among the sub-themes of the forthcoming ICOMOS scientific symposium 'Heritage and Democracy'.

"Culturally natural or naturally cultural?" will, we hope, add to this area of dialogue and co-operation, both in thinking and practical demonstration.



OVERVIEW

Culture and Nature – two sides of the same World Heritage coin

Adrian Phillips and **Christopher Young**[2]

Cultural and natural heritage – their place within the World Heritage Convention

The World Heritage Convention is constructed around two ideas: cultural heritage and natural heritage. These are defined in Articles 1 and 2 of the Convention respectively; running through its entire text is the idea that heritage can be of either kind. It gives equal weight to both cultural and natural heritage and to the importance of their protection.

This balanced approach reflects the way in which the convention came about in the ten or so years leading up to its adoption in 1972. UNESCO argued for a convention on cultural heritage in the wake of its success in moving the Abu Simbel monuments; IUCN argued for a Convention on World Heritage (but with most emphasis on natural sites); and the US Government campaigned for a World Heritage Trust that would mirror at the global level the twin aims of protecting nature and culture that characterised the work of its National Parks Service. Following discussion at the Stockholm Conference on the Human Environment (June, 1972), these streams crystallised around the proposal for a "Convention Concerning the Protection of the World Cultural and Nature Heritage", which was adopted by UNESCO in Paris on 16 November, 1972 (Cameron and Rössler, 2013).

The Convention sets out the duties of States Parties (its signatories) to identify potential World Heritage Sites and their role in protecting and preserving them. A system has been developed for identifying sites against: i) ten criteria; ii) the conditions of integrity and, for cultural sites only, authenticity; and iii) effective protection and management. Where all these conditions are met, a site is considered to have outstanding universal value (OUV). Nominations from States are assessed by expert bodies which advise the World Heritage Committee (a committee elected from all the States Parties). The Committee meets annually to assess nominations and review the state of conservation of existing sites. The convention, which is serviced by the UNESCO World Heritage Centre, is widely considered to have been successful in identifying and safeguarding the most important cultural and natural sites in the world, though of course it faces many challenges[3].

The Convention embraced within one framework the often separate worlds of cultural and natural heritage protection and conservation; in so doing it broke new ground at the international level. However, this overarching framework provides for separate and parallel arrangements for each kind of heritage, with different criteria derived from Articles 1 and 2, separate expert advisory bodies (ICOMOS, ICCROM and IUCN), and many other operational differences. Thus the Convention brings the two concepts together but it has struggled to achieve their integration (see Appendix 2).

Why the integration of culture and nature matter

Humanity is, of course, part of nature. Drawing a sharp boundary between them has always been a misguided exercise in denying biology and the reality of human evolution. Philosophers from the time of Hobbes and Rousseau would have felt uneasy with the idea that human beings can escape the influences of the natural world. The reverse is no less true: in the recent years, it has become clear that climate change and global atmospheric pollution mean not even the most remote corner of the globe can escape anthropomorphic influence (McGibben, 1990).

[2] Christopher Young is an historian and archaeologist who has spent his career working on the management of heritage places in a variety of contexts. He retired from English Heritage in 2014 as Head of International Advice and is now working freelance, mainly on issues related to World Heritage. Adrian Phillips is a geographer and a planner who has been involved in conservation and landscape protection throughout his professional life. Since retiring as CEO of the Countryside Commission in 1992 he has followed a portfolio career here and abroad, including IUCN, World Heritage and the National Trust.

[3] There are now (2017) 1073 World Heritage sites (832 cultural sites, 206 natural sites and 35 mixed sites)

So the connections between culture and nature are, in their broadest sense, intimate, complex and profound. One particularly telling way in which they form two sides of the same coin is through the values that we ascribe to both. Thus we can find a wide range of cultural values in natural systems; and similarly many natural values when we take a new look at cultural systems (Figures 1 and 2).

Figure 1: The *cultural* values in natural systems

- **Cultural identity** – i.e. the way that people and communities derive their sense of distinctiveness from the links they have to the natural environment around them
- **Heritage values** – i.e. the "memories" in the landscape which derive from past cultural associations
- **Spiritual values** – i.e. the sacred, religious or other forms of spiritual inspiration derived from nature
- **Aesthetic and artistic appreciation** derived from natural and modified landscapes
- **Recreation and tourism** based on the experience of nature

Adapted from Rudolf de Groot, P.S. Ramakrishnan (2005)

Figure 2: The natural values in cultural systems

- **Nature conservation values** – i.e. of semi-natural systems, and of the wild species of fauna and flora in them, that arise as a result of human intervention
- **Agro-biodiversity values** – i.e. of the variety of livestock, crops, fruits etc. that derive from farming methods
- **Teaching values** – i.e. places which are models of sustainable land use and show how to live in harmony with nature
- **Contrasting values** – i.e. cultural features that enhance natural beauty by their presence
- **Derived landscape values** – i.e. the presence of harmonious natural materials (stone, wood etc.) derived locally and found in humanised landscapes
- **Collections of natural materia**l – i.e. *ex situ* collections of animals, plants, trees etc.

Adapted from World Heritage Operational Guidelines (2016)[4]

[4] UNESCO, 2016, Operational Guidelines for the Implementation of the World Heritage Convention, paragraph 47.

How the World Heritage Convention has dealt with integration

This mutuality of values is the reason why the understanding and protection of cultural and natural heritage should be approached in an integrated way. However, as we have seen, the convention treated each kind of heritage separately. Two serious problems arose from this approach. First, it overlooked the fact that *all* World Heritage Sites have both cultural and natural values, even if only some of these values can be considered to be of OUV. Effective management of these will therefore require that the full range of values – not only those for which the site has been inscribed – are recognized and taken into account. The significance of this will be apparent in all the case studies described below. Increasingly over the years, implementing the convention has required that a holistic, integrated approach is taken to World Heritage Site management and this is a feature of much of the advice now coming from the World Heritage Centre and the advisory bodies.

Secondly, it ignored those places where OUV arises not from cultural or natural qualities *per se* but from the way in which they interact. It was this consideration that led the World Heritage Committee to adopt in 1992 a new category of World Heritage Site called "cultural landscapes". These derive from Article 1 ("*the combined works of nature and of man*") being "cultural properties that … (are) ... illustrative of the evolution of human society and settlement over time, under the influence of physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal[4]. The committee decided that cultural landscapes could be of three kinds: designed; organically derived (either on-going or fossilised); or associative (See Appendix 2).

Case studies

The case studies have been picked to illustrate the juxtaposition and mutual influence of nature and culture within World Heritage properties. This is not just a question of values, but also a matter of legislation, international designations and the involvement of different agencies for culture and nature, or, possibly worse, of only one agency when both sets of values apply. We look at four cultural landscapes and explore how the convention has dealt with integration of culture and nature in them. We then draw lessons for wider application in other World Heritage Sites – and beyond.

Case study 1: Rice Terraces of the Philippine Cordilleras (inscribed under criteria (iii), (iv) and (v))

This site, which is in the highlands of the largest Philippine island, Luzon, was among the first Cultural Landscapes to be inscribed on the World Heritage List in 1995. It is a dramatically beautiful landscape, the product of two thousand years of working the steep mountain slopes so as to provide a sophisticated system of irrigation, feeding narrow rice terraces. Terraces of this kind are found over a wide area of this part of Luzon, but the inscribed site consists of five exceptionally well maintained clusters, all being the product of the Ifugao ethnic group, a minority community that has lived here for thousands of years. It is a classic example of an organically evolved landscape which still maintains its authenticity.

The rice terraces are among the highest in the world, with cultivated slopes often at an angle of 40 degrees or more. They exist in an area that is prone to earthquakes and which lies in the path of tropical cyclones – and so landslides occur frequently. The survival of this complex system of irrigated farming in such difficult natural conditions has only been possible through the dedicated efforts of many generations of Ifugao. They have developed strong community traditions which relate to the upkeep of the irrigation system and to how the rice is planted and harvested. These traditions extend to the protection of the forest patches above the terraces so that water supply is regulated and soil conserved.

As with all cultural landscapes, the rice terraces are inscribed as a cultural site, yet it is the fusion of natural and cultural elements that makes it such a remarkable place. This carefully balanced system is however vulnerable to change. External economic and cultural forces threaten the social bonds that support the community traditions that help maintain irrigation and cultivation practices. For example, when young men prefer to be taxi drivers in Manila to working on the often cold and wet terraces, not only are there fewer people available to do the work on the terraces, but the community cohesion and long standing traditions that underpin the co-operative approach to farming also break down. As a result, many parts of the irrigation system have been neglected and rice growing has been abandoned in places. At the same time, there is pressure to cut down the forested watersheds, whilst the impacts of climate change subject the whole irrigation and farming system to additional stress.

Rice Terraces of the Philippine Cordilleras: a landscape shaped by two thousand years of rice cultivation and irrigation
© Patrick Venenoso

Because of these threats, the Rice Terraces of the Philippine Cordilleras were placed on the List of World Heritage in Danger in 2001. A focused national and international programme to restore damaged parts of the terraces, protect the watershed forests, regulate inappropriate development and reinforce the community in maintaining its traditional rice growing system led to their removal from this list in 2012. This has been a World Heritage success story that could only be achieved through an integrated approach to the natural and cultural values of the rice terraces.

Thingvellir, Iceland: looking from the North American tectonic plate towards the European one, with the Prime Minister's summer residence at the centre of the site © UNESCO/Francesco Bandarin

Case Study 2: Thingvellir National Park, Iceland (inscribed under criteria (iii) and (vi)).

Standing astride the expanding gap between the North American and European plates, Thingvellir offers a lesson in plate tectonics. Faults and cliffs, recent lava flows, a downfaulted lake and frequent earth tremors all testify to the active geology of this part of Iceland. There are few places on earth where the dynamic nature of the earth's crust is easier to see.

Yet it is not for its geology that Thingvellir was made a World Heritage Site in 2004, but for its cultural significance in the history of Iceland and indeed the development of principles of democracy. This is where the Althing, an open-air assembly representing the whole of Iceland, was established in 930. For two weeks each year the assembly met at Thingvellir to make laws and settle disputes. It continued to meet here till 1789. In 1944, Iceland declared its independence here. Thingvellir has always been at the centre of Icelandic identity.

There are visible remains of the Althing, especially the booths where those attending the meeting stayed. But the site is valued even more for its iconic associations with the history of Iceland; symbolically it is where the President has his country home, and it is much visited by Icelanders and international tourists.

While this is a cultural site, its proper management requires that full regard be had to its extraordinary natural qualities. For example the lake to the south is important for its unique fish species, which are vulnerable to pollution. Likewise, unsympathetic tourism development within and near the historic site, the building of holiday cottages beside the lake and growing volumes of road traffic, will all detract from the area's character by damaging its dramatic natural setting, in which cliffs, rivers, mountains and lakes all play their part. Whatever may be the reasons for inscription, this site needs to be managed with both natural and cultural values in mind.

This indeed is the purpose of the management plan for the Thingvellir National Park (2004-2024), which doubles up as the World Heritage management plan. Because the National Park plan has a broader remit to safeguard nature as well as the historical area and heritage sites, and to make provision for visitors whose numbers are projected to rise steadily, it can provide that broader context which is required if both natural and cultural values are to be addressed in an integrated way. Since inscription some progress has been made to improve protection, though tourism pressures continue to grow. The Icelandic environment is however naturally very vulnerable to external forces: the scenery is open, there is little vegetation and it grows slowly, soil erosion is an ever present threat, the effects of climate change occur more rapidly in these high latitudes and pristine water systems are easily polluted. The protection of Thingvellir's unique character will call for continued vigilance.

Orkhon Valley © Christopher Young

Case Study 3: The Orkhon Valley cultural landscape, Mongolia (inscribed under criteria (ii) (iii) and (iv)

The Orkhon Valley cultural landscape is over 120,000 hectares of pastoral river valley in central Mongolia, some 360kms south-west of the capital Ulaanbaatar. Because the Orkhon River does not dry up and therefore supports year-round good grazing, its valley has been a favoured area for pastoral nomadic settlement for many millennia. The earliest traces of humans in the valley go back to around 60,000 years ago. In proto-historic and early historic times, the Valley was inhabited by a series of nomadic cultures, being successively the home of the Huns, early Turkic peoples, the Uighurs, the Kidans and finally the Mongols. All these nomadic cultures had firm bases in the Valley whether in the form of administrative and trading centres or of religious establishments. The capital of Chinggis Khaan's empire, Kharakhorum, lay next to the modern town of Harkorin and is partly overlain by the Erden Zuu monastery, the first Buddhist monastery in Mongolia. It was also an important part of trade routes across Asia.

The Orkhon Valley is inscribed on the World Heritage List for the evidence it contains of historic nomadic cultures and their bases, as well as for its strong culture of nomadic pastoralism continuing to the present day. It is also inscribed because its successive nomadic cultures dominated much of central Asia and further afield, and for development of a Mongolian form of Buddhism. All these cultures depend on the natural values of the property because they require a perennial water supply to support pasture land for grazing stock. It is these natural features which have made the Valley a preferred focus for human settlement down the millennia.

The natural character of the valley, as modified by millennia of pastoralism, therefore underpins its OUV. Its continued use by pastoralists is an attribute of its OUV and is entirely dependent on maintaining those natural values. The ecology of the overall landscape and pastoral practices are vulnerable to lowering of the water table associated with tree-cutting and mining, pollution of watercourses and the effects of overgrazing, perhaps exacerbated by changing the types of stock which are kept in response to commercial pressures for particular products. This has been recognised in the Management Plan, first drawn up in 2002 and revised in 2006, which aims to put in place a system for ensuring lasting harmony between the ecology of the grasslands and the practices of nomadic pastoralism[5]. For the time being the balance is maintained but careful management between all stakeholders is necessary now and in the future to ensure that this is maintained.

[5] See Statement for Outstanding Universal Value for the Orkhon Valley http://whc.unesco.org/en/list/1081/ (accessed 6th November, 2014)

Pen Ffordd Goch © Crown copyright: Royal Commission on the Ancient and Historical Monuments of Wales © Hawlfraint y Goron: Comisiwn Brenhinol Henebion Cymru

Case Study 4: Blaenavon Industrial Landscape, Wales, UK (inscribed under criteria (iii) and (iv))

The Blaenavon Industrial Landscape is an outstanding example of industrialisation in the 18th and 19th centuries. The parallel developments of coal mining and the production of iron and steel helped to drive forward the Industrial Revolution. As expressed in the Statement of OUV: "*The major preserved sites of Blaenavon Ironworks and Big Pit, together with the outstanding relict landscape of mineral exploitation, manufacturing, transport, and settlement which surrounds them, provide an extraordinarily comprehensive picture of all the crucial elements of the industrialisation process: coal and ore mines, quarries, a primitive railway system and canal, furnaces, workers' homes, and the social infrastructure of the early industrial community. The area reflects the pre-eminence of South Wales in the production of iron, steel and coal in the 19th century*"[6].

For most visitors the obvious sights are the Ironworks and Big Pit. However, these are just one part of the intensively industrialised landscape of the valley and the uplands around it which is recognised as an integral part of the property's OUV. The World Heritage property extends over more than 30 square kilometres, much of which is upland moorland and pastures. The moorland preserves an incredible range of archaeological evidence of industrialisation up to some of the earliest opencast coal mining in Great Britain from the time of the Second World War, still visible as massive earthworks.

The Blaenavon Industrial Landscape exhibits a very special interrelationship between cultural and natural features. The importance of the site in ecological terms has been recognised by the designation within the area of six Sites of Special Scientific Interest. The area contains a diverse flora and fauna reflecting its great variety of habitats, from dense deciduous woodland to moorland, areas of open water and mines, caves and quarries. It also has high geological significance, in itself a factor making it attractive to 18th and 19th century industrialists as a source of raw materials[7]. The northern half of the property lies within the Brecon Beacons National Park, designated for its landscape significance.

These values are not directly attributes of the OUV agreed for the property. They are, however, of national significance and need to be protected and enhanced along with the attributes of OUV. In fact, in many cases, the management practices needed for the natural heritage will also benefit the archaeological attributes of the property. Protecting its visual setting benefits both the industrial heritage and the moorland landscape. This is recognised in the World Heritage Management Plan, whose primary aim is to protect the cultural landscape as a whole, with increased emphasis on a holistic approach linking cultural and natural heritage. In doing so, it will be necessary to face many pressures but the plan is intended to provide the necessary framework to do so.

[6] Blaenavon Industrial Landscape Statement of Outstanding Universal Value http://whc.unesco.org/en/list/984 (accessed 6th November, 2014)

[7] See Blaenavon World Heritage Site Management Plan 2011 – 2016 for further detail http://www.visitblaenavon.co.uk/en/WorldHeritageSite/WorldHeritageSite/Documents.aspx (accessed 6th November, 2014)

Themes emerging from Case Studies

Examination of these case studies (and of others presented in the lecture on which this paper is based) identifies a number of themes which are common to all or most of them. Four are particularly important and are discussed in order to provide guidance to those dealing, now and in the future with sites, with both cultural and natural values.

Different perceptions among different groups of people and at different points in time

Heritage places, whether natural or cultural, are defined by their values. Values in practice only exist when they are recognised by a community, virtual or actual, as now recognised in the Council of Europe 2005 Framework Convention on the Value of Cultural Heritage for Society (the Faro Convention). Still ratified by comparatively few European states, this Convention says that enjoyment of cultural heritage should be a human right and that cultural heritage exists if it is recognised by a community. That community is made up "*of people who value specific aspects of cultural heritage which they wish, within the framework of public action, to sustain and transmit to future generations"*[8]. In this context, cultural heritage can be real or virtual.

A similar idea forms the foundation of the Council of Europe 2000 European Landscape Convention, which defines landscape in these terms: "*an area,* ***as perceived by people,*** *whose character is the result of the action and interaction of natural and/or human factors"*[9] (emphasis added). Landscape, in other words, exists only because people perceive it. Similarly nature: while many would argue that it can have intrinsic value, it is obvious that certain manifestations of nature also have a special value to certain groups of people, and that nature has values to humanity at large.

So values in heritage, whether natural or cultural, only exist because they are held by people. This means that values can change over time as perceptions change. For example, we now attach high value to Victorian architecture and the remains of the industrial revolution, though previous generations thought less of them. Likewise, some kinds of birds and mammals that were once thought of as vermin are now protected as endangered species. It is also the case that heritage sites can have multiple values, since different communities will perceive different values in the same place. A good example of this is Stonehenge. Archaeologists will see it as an outstandingly important archaeological site, demonstrating, with its landscape, the culture of Neolithic and Early Bronze Age Britain. New age pagans and other religious groups will see it rather as a sacred place. For others, it is valued as one of the largest areas of chalk grassland in Europe, which is now in the process of restoration. These differences in perceived values are important not just in our understanding of a place's significance but also in deciding how it should be managed.

Difficulty of managing culture and nature together

Since a wide range of values often pertains to one place, a variety of disciplines are usually needed to understand the full, holistic significance of a site. Traditionally, culture and nature have been approached from different perspectives, based on different academic backgrounds, training, legislation and government and governance structures. It may also be that the management approaches needed to protect particular sets of values are in conflict (or at least perceived to be so) with that required by other values. All this means that there are often gaps and, differences in the way in which people recognise values and prioritise management requirements.

Institutional separations complicate matters. In England, for example, the protection of natural and cultural heritage operates under different legislation, nationally and internationally, and is the responsibility of different non-departmental bodies working to different government departments. Also few NGOs - the National Trust apart – find it easy to take a holistic view of nature and culture together. This division of responsibility is found in many government systems round the world (though the national parks services of the USA and Canada straddle both interests, as is also the case with some very small states). To overcome this separation, Natural England and English Heritage (EH) have consciously and conscientiously worked together, devising a Memorandum of Understanding and promoting close staff cooperation, to overcome such barriers. Such holistic approaches can produce remarkable results, as for example with the Stonehenge and Avebury grassland reversion programme. Using Environmental Stewardship funding, around 750 hectares have been converted back from arable fields to a grassland pasture which is rich in native species – which is good for both archaeology and wildlife[10].

But even with a high level of co-operation, there will still be some cases where natural and cultural values do come into conflict – e.g. badgers can damage archaeology – and where different management approaches are needed to deal with the needs of both. Generally such conflicts are rare and can be overcome but this is likely to require active cooperation between agencies for cultural and natural heritage along with owners and other stakeholders. However they can be more profound: the nomination of the Lake District as a World Heritage cultural landscape highlights a difference between those who advocate the protection of the traditional farming landscapes of the area, which have derived from past land management practice, and those who argue that more emphasis should now be put on the delivery of ecosystem services, such as flood avoidance and that greater biodiversity should be encouraged through re-wilding initiatives. Reconciliation could depend on different approaches being adopted in different parts of this relatively large area.

[8] http://www.coe.int/t/dg4/cultureheritage/heritage/Identities/default_en.asp (accessed 6th November, 2014)

[9] Article 1a of the European Landscape Convention, 2000 see http://www.coe.int/t/dg4/cultureheritage/heritage/Landscape/default_en.asp (accessed 6th November, 2014)

[10] Pers. Comm. Sarah Simmonds, November 2014

Difficulty of managing World Heritage and other values

Much of the apparent challenge in managing different sets of values reflects compartmentalism in the management of heritage. A values-led approach, increasingly common in cultural heritage at least, means that places can be designated for specific values, internationally, nationally or locally. In fact all places will have many different values, cultural and natural. Many of these will not be sufficient to merit official designation and legal protection but may still be highly prized by stakeholders, particularly within local communities. These values need to be given some weight in site management even if they are not specifically protected by designation.

World Heritage inscription in particular is highly selective because of the test of OUV. This applies not just to the selection of the properties but also to the identification of the attributes of OUV within each property. So most World Heritage properties will have important (national or regional) values not recognised in their OUV. This can lead to problems in management if different categories of values are perceived as being in conflict with, or "trumping", each other. This conflict between natural and cultural values can be exacerbated by the existence of separate administrative and legal structures, as noted above. Normally this can be resolved by close cooperation between stakeholders and the responsible agencies, but only if a collaborative and inclusive management system is in place.

A particular problem can occur when the World Heritage label is used by stakeholders to protect values that are not part of a World Heritage designation. This can arise when there are strong local objections for example to a development project which does not have an adverse impact on OUV but may damage other values. In a values-led management system dealing with a place which has multiple values protected through various designations, it is important to deal with each issue in the context of the designation which is affected by it (for example, a proposed wind farm may raise questions relating to the purposes of an Area of Outstanding Natural Beauty (AONB), but have little or no adverse impact on the OUV of a World Heritage Site within the AONB). This may be difficult for some stakeholders to understand, and the site manager has the unenviable task of trying to achieve an overall holistic solution to the full range of problems which the area may face.

Moving from site-based to landscape-based focus

All this has to be put into a context where conservation of all kinds has moved from a site-based to a landscape-based approach to protection and management. Thus monuments were traditionally seen as separate and able to be managed in isolation; we now recognise that this is not possible. Likewise a site-based approach to nature conservation is no longer enough: we realise that we need to expand such sites, connect them up and manage them at landscape scale in order to protect them effectively against external threats (Lawton, 2010). So, rather than looking at the protection of small sites of great natural or cultural value, management has to be increasingly focused on whole landscapes, embracing both culture and nature. This requires that other land uses and interests, such as agriculture, must be recognised in any conservation management system.

It follows that site managers are now seldom in charge of all the land that may be needed to protect the property (and its setting). Much of what needs to be managed will be in other ownerships and the site manager will need to work with these other stakeholders. Similarly, with regard to values, the site manager will need to work with all those involved in defining and protecting values, both cultural and natural. This will be best done through a collaborative management system set out in a management plan that embraces nature, landscape and heritage conservation.

Within Britain at any rate, all landscapes have been affected and influenced over long periods of time by humans, and all human activity is influenced by the rest of the biosphere. Our systems for control, protection and sustainable use will perhaps always struggle to catch up with this reality, given the complexity of modern society. Hence the importance of creating proactive, co-operative management approaches to World Heritage sites based upon partnerships between the full range of interests. Such partnerships must involve all major stakeholders, and should recognise that there is place for many land uses, provided that these are sustainable. Setting up and managing such co-operative arrangements can be laborious and time consuming, but such an approach is the best guarantee of the integrated management of cultural and natural values.

References

Cameron, C. and Rössler, M. (2013). *Many Voices, one Vision – the early years of the World Heritage Convention*, Ashgate.

Lawton, J. (2010). *Making Space for Nature: A review of England's Wildlife Sites and Ecological Network,* Defra.

McGibben, B, (1990). *The End of Nature*, Viking.

UNESCO (2016). Operational Guidelines for the Implementation of the World Heritage Convention.

National Trust: an unnatural history

David Bullock, Head of Nature Conservation for the National Trust

This paper covers aspects of how the natural history within National Trust (NT) land, including in the World Heritage Sites in which we have a stake, is often of cultural origin, introduced by people and valued by them. In short, we celebrate an unnatural history. With a few notable exceptions, such as the damaging impact of non-native predatory mammals on seabirds and insects that eat fabrics, there is much to celebrate about the culturally natural on NT land, including in World Heritage Sites. I describe some of the ways in which the influence of people (who, fundamentally, are also part of nature) on the natural elements of NT land continues unabated and is expressed in unexpected ways.

National Trust purposes

The National Trust Act 1907 includes a critical paragraph: "The National Trust shall be established for the purposes of promoting the permanent preservation for the benefit of the nation of lands and tenements (including buildings) of beauty and historic interest and as regards lands for the preservation (so far is practicable) of their natural aspect, features and animal and plant life"

NT exists in part because humans tend not to think long term and big scale, and we struggle to deal with shared resources. In addition, the market for commodities is not always right. There are intangibles that markets just cannot deal with amongst which is beauty, which matters so much to people. This frames the Trust's cause of "conservation, access and engagement" and the overlap with the integrated values of World Heritage. NT values of thinking long term, inspiring others, loving special places and sharing a common purpose are easily accommodated within the World Heritage concept of outstanding universal value (OUV).

Cultural and natural ownership

The National Trust owns around 250,000 ha of land in England, Wales and Northern Ireland representing some 400 properties. The extent of coastal ownership (1700 km of coastline) and land in the uplands (including, for example, 100 square kilometres of the Peak District) reflects deep rooted and passionate defence of undeveloped and beautiful coastlines and wide open spaces where you are free to roam, forever. The highest density of NT properties based around a large country house, garden, parkland and wider farmed estate is in London and south east England where many of our 4 million members live, but where, interestingly, we do not have a land holding stake in a World Heritage Site.

Eight of the 27 World Heritage Sites in the UK include at least some National Trust land. This encompasses two natural World Heritage Sites – the Giant's Causeway and the Dorset and East Devon Coast, and six cultural World Heritage Sites – Stonehenge, Avebury and associated sites; City of Bath; Cornwall and West Devon Mining Landscape; Studley Royal Park, including the ruins of Fountains Abbey; Frontiers of the Roman Empire; and the English Lake District. Irrespective of why they were inscribed, they all have high natural and cultural values. They make up a significant contribution to the 200 million visits each year to NT properties.

Very little of the UK countryside is pristine or truly natural (perhaps a few coasts, shingle banks in a few wild rivers and some montane plateaux) as evidenced by the frequently used adjective for habitats of "semi-natural" as in "ancient semi-natural woodland". If nothing is totally natural, neither is it totally cultural. Our built structures and designed landscapes are homes, sometimes the only ones, for several species and habitats that are rare or threatened, and at the edge of their natural range.

Present day climate change could alter this paradigm, and where nature has "moved in", it may now start to "move out". Some species, with the unenviable tag of "non-native invasive" often do best in the odd microclimates and hugely modified habitats of our buildings, gardens and other designed landscapes. Indeed, that is often where they were first introduced before hopping over a boundary wall into the wider countryside.

Natural aspect

In England, Wales and Northern Ireland, nearly 40% of Trust land is designated as a Site or Area of Special Scientific Interest (SSSI or ASSI). It is especially significant for upland habitats such as blanket bog, unimproved lowland grasslands and a range of coastal habitats. Birds, including seabirds, butterflies and other invertebrates, and bats are very well represented on Trust land and, in the case of the

Pinks growing on the wall of Fountains Abbey ruins © National Trust/ Michael Ridsdale

last, in its buildings. The commitment to what is now called biodiversity conservation was spelled out in our 1907 Act. Our Geology Policy (Anon, 2007) sets out our approach to geological conservation and identifies many of our key sites for geodiversity.

Recognising that both nature[11] and our connection with nature[12] are in decline, in 2015 the NT launched its new Strategy, *Playing our Part*[13]. It is all about restoring connectivity: nature with nature, nature with people, and policy with practice. We have committed to restoring a healthy, beautiful, natural environment; offering experiences that move, teach and inspire; and helping look after the places where people live. Achieving these outcomes will depend upon deepening peoples' understanding and love of special places. World Heritage Sites provide an opportunity to enhance this "offer", especially if their stories are told well and with passion.

[11] State of Nature 2016 https://ww2.rspb.org.uk/our-work/stateofnature2016/

[12] http://richardlouv.com/books/last-child/

[13] https://www.nationaltrust.org.uk/documents/national-trust-playing-our-part.pdf

Balancing nature and culture, some examples

Scientists' facts and the public's perceptions

The Giant's Causeway WHS was inscribed in 1986 as a natural WHS under criteria (vii) and (viii) of the World Heritage Convention. The outstanding universal value (OUV) recognises the exceptional natural beauty of the columnar lava plateau and the critical contribution that this sequence of lava flows makes to our understanding of the Tertiary evolution to the North Atlantic.

The Causeway Visitor Centre, opened in July 2012, tackles head on three explanations for the origin of the famous basalt columns on the shore for which this amazing coastline was, in part, inscribed: the Giant's Causeway is debris from a mythical battle between an Irish and a Scottish giant; it was created by a divine power; it is the result of volcanic events 60 million years ago.

The Visitor Centre interpretation notes that some people, for religious reasons, believe that the Causeway was created during Genesis; the inclusion of creationism has been strongly challenged by some scientists, especially geologists. However, for many people geology is an inaccessible discipline. Cartoons about battling giants and a nodding reference to creationism, however unnatural, can be the portal for deepening their understanding of the process of volcanism on the Causeway Coast. Including explanations for the origins of the stones that are beyond scientists' facts can enable some people to get the best out of a visit to this World Heritage Site. Myth and logic need not be incompatible (Armstrong, 2009) and the use of soft skills to successfully engage people in (natural or cultural) heritage issues remains undervalued (see also Max Bryant, this report).

The unnatural outdoors

A small proportion of non-native species become invasive: one estimate is 0.1 % of the species that enter the country (Williamson *et al*., 1986). Those that do can displace native species, change habitats and cause significant societal and economic damage (Defra, 2015). Rats (*Rattus* spp) and other non-native mammals can decimate seabird colonies on islands, and zebra mussels (*Dreissena polymorpha*) and New Zealand pygmy weed (*Crassula helmsii)* can profoundly alter water quality in wetlands. However, most exotic species, though unnatural in terms of range, appear to be benign or locally welcomed.

Some, for example the feral Soay sheep (*Ovis aries*) on the St Kilda archipelago and the feathered pink (*Dianthus plumarius*) on the walls of Fountains Abbey, are cherished for their heritage value as progenitors. Sheep are not native to Britain or Ireland. They arrived in Neolithic Britain as a domesticate and there is no doubt that the grazing of this non-native species has transformed ecosystems to such an extent that it could be considered invasive as well. Nevertheless the Soay, as an ancient domesticated sheep similar to the earliest "fleeced" as opposed to "hair" forms

(Jewell *et al.,* 1974), is highly valued for cultural reasons. It is the subject of one of the longest running studies of a free ranging mammal population[14], the scientific value of which increases every year of research.

The beautiful feathered pink[15] is considered the ancestor of most garden pinks. Cultivated in Britain for centuries, today it is found growing on the ruined walls of Fountains Abbey. This escapee from the monk's gardens and survivor of the reformation and dissolution of the monasteries in the 16th century is a delight to the eye against the background of the dull and dark stones of the Abbey ruins.

The unnatural indoors

Most of the British and Irish species of bats make use of buildings for their roosts (English Heritage, 2009). The lesser horseshoe bat (*Rhinolophus hipposideros*), is entirely dependent upon buildings for breeding. The earliest definite records for this species in Britain are from the Neolithic (Yalden, 1999). In the UK and Republic of Ireland, this species is at the northern edge of its range. Perhaps it has always relied upon buildings for breeding roosts this far north, and is as much a commensal dependent on humans as are the house mouse (*Mus musculus*) and house sparrow (*Passer domesticus*)?

Within the range of the lesser horseshoe bat in south–west England and Wales, the roof voids of big country houses are frequently used as roost sites. This "habitat" is not recognised as such; most built structures are too far from the concept of natural to be counted as such. Yet for this rare and threatened species, which is the subject of special protection within the EU (listed under Annex 11 of the Habitats and Species Directive), buildings are necessary for its populations to maintain their Favourable Conservation Status.

Other examples of buildings that are vital roost sites for bats include Paston Great Barn National Nature Reserve, Site of Special Scientific Interest and Special Area of Conservation, and Scheduled Ancient Monument in Norfolk. This large Medieval flint and limestone thatched barn, of huge historical interest, has one of the few known maternity colonies of the barbastelle bat (*Barbastella barbastellus*) in the UK.

Northern temperate bat species usually mate in the autumn, after what appear to be aggregations of males undertaking elaborate display flights. This "swarming" behaviour typically occurs in and around features such as cave and mine entrances. National Trust's Cliveden House terrace (Berkshire) has what is thought to be the only bat swarming site based on a built structure in the UK, involving hundreds of bats and up to eight species. It is also home to the non-native Cliveden snail (*Papillifera papillaris*) (one of two known populations, the other being on Brownsea Island) which was introduced as a stowaway in the crevices of a balustrade imported from Rome in the 19th century.

[14] http://soaysheep.biology.ed.ac.uk/
[15] http://johngrimshawsgardendiary.blogspot.co.uk/2011/06/original-pink.html

In terms of species and their abundance, this commensalism is not static. Ordish (1960) described how the fate of individual invertebrate species has changed since the 16th century within one house (Bartons End, Kent). Some, such as the various clothes moths species and the bed bug (*Cimex lectularius)* have evidently fluctuated widely in abundance over time. There are now guides on the management of the animals and plants that inhabit the places where we live (e.g. Bullock and Ferneyhough, 2013; English Heritage, 2009).

What local people value may not be what is valued nationally or globally.

Living with change

The National Trust accepts that we are in an "anthropocene" age of climate change caused by the human use of fossil fuels. Sea level rise under a moderate climate change scenario would mean we lose some significant coastal features. For example, the Giant's Causeway could become sub-littoral and so physically inaccessible to most visitors for much of the year by the end of this century.

Given its extensive ownership of coast, sea level rise, coastal change and the increasing frequency and intensity of extreme events are major areas of concern for the National Trust. In Coast 2015, our celebratory and questioning 50th year of the Trust's Neptune campaign, we identified and worked with coastal realignment. Always controversial, over a decade earlier the Trust adopted an informal 50:50 rule: set aside at least 50 % of a budget for coastal projects where change is anticipated for working with people and their perceptions, fears and misgivings. For this to be successful, scientist's facts may be irrelevant and soft skills will be needed. A good example is the National Trust's Birling Gap property on the Sussex Coast - a highly controversial site of coastal erosion which has included the loss of houses.

Here chalk cliff recession has led to the progressive loss of terraced houses and currently the NT Visitor Centre is being redesigned and set back from the cliff edge. The Red Earth Theatre group, in 2005, working with the local community created a 200 m long erosion line of stone and beach materials on the foreshore and a line of cliff-top white flags marking the future cliff line. The project 'Geograph: trace, vanishing point' linked to Parangtritis beach in South-East Java and aimed to widen an awareness of our often dramatically changing coastal environment.

Understanding change at Birling Gap is entangled in global environmental dynamics. There is a lot of scientific evidence about environmental change such as sea level rise, changing climate and weather patterns, and human generated species extinctions. It is, however, difficult to conceive what this can mean in the future, over a year, decades, centuries and millennia (we are bad at thinking long term). Use of cultural and visual references, as at Birling Gap, can help to enable this understanding and has been explored in detail in

Natterer's bat, Cliveden © NT Images/Chris Damant

'*Anticipatory History* (DeSilvey *et al*., 2011) which considers the past, present, and future of our environment and how we perceive and understand time and change.

The importance of 'cynefin'

There are pitfalls in trying to capture what the Welsh word cynefin means by describing it in words, and in English. In the context of culturally natural/naturally cultural, however, it is too useful a concept to ignore: A sense of belonging; attachment to, a human construct about a place. What follows is an example of what it means, and its importance to a major segment of users of the countryside – dog walkers.

A Christmas tree for dogs

Rodborough Common, SSSI and SAC, is internationally important for its limestone grassland. It is very popular with dog walkers, offering fantastic views over rural/urban/light industrial sprawl of the Stroud Valleys in Gloucestershire, UK, and plenty of exercise for dogs and people alike.
It seems unlikely that the dog walkers were aware of either the Natura 2000 designation or NT ownership when some years ago they festooned a mature hawthorn by a well-used path on the scarp edge of the Common with Christmas decorations. Christmas cards, and sometimes remembrance cards, from dogs to other dogs are lodged amongst its branches. The NT initially objected to this practice but now welcomes decoration of the tree for two weeks around Christmas. For the dog walkers, the Christmas Tree for dogs on Rodborough Common is part of their cynefin.

At first discouraged (unnatural, potentially damaging the ecology of the site), it is now recognised as an important way in which people connect with and value their local natural nature.

Conclusion

In summary, for a majority of NT and the UK's World Heritage Sites, natural and cultural values are in a continuum. Some of our wildlife, including non-native species, is dependent upon cultural heritage (such as old monumental buildings) for its conservation. Most of our landåscapes and their constituent habitats are cultural ones. If we evaluate and classify them only in what we consider to be objective ways, we risk not understanding their significance for a majority of people. And if they are not well understood they will not be well conserved.

What is clear is that nature always moves in (and some is unnatural) and culture always moves out (and some is natural).

References

Anon (2007) http://www.nationaltrust.org.uk/main/w-geological_policy-2.pdf

Armstrong, K. (2009). The Case for God. What Religion Really Means. The Bodley Head, London.

Bullock, D.J. and Ferneyhough, J. (2013). When nature moves in: a guide to managing wildlife in and around buildings. National Trust, 67pp.

Defra (2015) http://www.legislation.gov.uk/ukpga/2015/7/notes/division/4/4?view=plain.

DeSilvey, C., Naylor, S. and Sackett, C. (2011). Anticipatory History. Uniform Books, Axminster 78pp.

English Heritage (2009). Bats in traditional buildings, 78pp http://roost.bats.org.uk/sites/default/files/publications/BatsInTraditionalBuildings_2009.pdf

National Trust. World Heritage Sites and the National Trust https://www.nationaltrust.org.uk/lists/world-heritage-sites (accessed August 2017).

Jewell, P.A., Milner, C. and Morton Boyd, J. (1974) Island Survivors. The Soay sheep of St Kilda. Athlone Press, London.

Ordish, G. (1960). The Living House. Rupert Hart-Davis, London, 265pp.

Yalden, D. (1999). The History of British Mammals. Poyser, London.

Williamson, M.H., Brown, K.C., Holdgate, M.W., Kornberg, H., Southwood R. and Mollison, D. (1986) The Analysis and Modelling of British Invasions [and Discussion] DOI: 10.1098/rstb.1986.0070

Greater than the sum of its parts – nature, culture and the unnatural work of Historic England

Vince Holyoak, Head of National Rural and Environmental Advice, English Heritage

It has been suggested by prehistorians that the massive stone roof slabs of the Neolithic chambered tombs found in Cornwall (some of the earliest recognised forms of monumental expression and, among the first monuments to be protected under the 1882 Act for the Better Protection of Monuments) represent deliberate mimicry of the weathered granite outcrops that are such a distinctive feature of the region. To go to such lengths to copy, and presumably to harness and "control" an aspect of nature is unusual. When one looks at other aspects of our cultural heritage today, it is however clear that - in the materials used and their form – the distinctive landscapes, settlements and built heritage that we so value today are often a direct function of geology, climate, topography and soils and demonstrate the ways in which humans have reacted to, adapted, and exploited them through time. But it does not end there, because – in a similar manner - most of the habitats and the species that we also value today are a direct result of centuries, or in some cases, even millennia of human intervention.

Policy disparity

In these respects nature, culture and cultural heritage are inseparable and counter-dependent – but that is certainly not the impression that one might get from even a cursory examination of the way they are legislated for and often managed. In the international policy context – especially the European one - there is a stark dividing line between cultural heritage and the natural environment. Whilst the European Commission has put in place legally binding Directives covering Habitats, Birds and Water Frameworks, for cultural heritage there are merely the Council of Europe's Granada (1985) Valletta (1992), European Landscape (2000) and Faro (2005) Conventions. Individual member states of the Council of Europe (of which there are 47) decide individually whether to become signatories to the provisions of these conventions, and as a result they may be transposed into domestic legislation, but their traction in policy terms is much less.

Why is there such a disparity in the protection of two fundamental parts of our environment? According to Article 167 of the Maastricht Treaty (1992) the Union should be "*encouraging co-operation between Member States and, if necessary, supporting and supplementing their action*" in the field of culture, but at the same it was not felt that the European Union should have decision making powers on cultural heritage policy. At first glance, the subsequent Lisbon Treaty (2007) might appear to contradict this, stating: *"The Union shall respect its rich cultural and linguistic diversity, and shall ensure that Europe's cultural heritage is safeguarded and enhanced".* But in effect this is merely reinforcing the perception that – because of the diversity – the "one size fits all" approach to legislation at a European level would not be suitable or effective, and that protection regimes should therefore be the responsibility of individual members states. This is unfortunate in that, at both a European and often a domestic policy level, there are European laws applying to nature but not to cultural heritage is taken to imply that the former is more important than the latter. There are also some fundamental philosophical differences between the conservation and management of cultural heritage in comparison to the natural environment.

Management disparity

The approach to the management of heritage is essentially one of conservation: the retention of fabric and in some cases (particularly in the areas of development and design) the "reinforcement" of distinctiveness. Although widely embraced by the natural environment sector, the concept of re-creation, whether it be habitats or through the re-introduction of species, is not one generally used by those managing the historic environment. This is primarily because, in contrast to nature, the historic environment is essentially non-renewable; when it is lost then it is lost forever. This is why concepts such as the re-creation of so-called "wilderness" areas (which effectively ignore the human dimension, and seek to turn the clock back to some imagined past) are so problematic for the cultural heritage

The abandoned beam engine houses of the Crowns section of Botallack Mine near St Just, Cornwall. The steam-driven engines were used for pumping water, and conveying ore and miners up and down, when the St Just area was an important centre for mining tin, copper and other minerals © NT Images/David Sellman

sector. Such approaches are also contrary to the principles of the European Landscape Convention (ELC) which defines landscape as "*an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors*".

Balancing cultural and natural ambition

In the light of these considerations English Heritage's fundamental approach to landscape management is that wherever possible, achieving one environmental objective should not prejudice or be detrimental to another. In so doing it accepts that in some cases one need might outweigh another. The key principle is to seek to have dialogue beforehand so that impacts can be avoided wherever possible, and mitigated if avoidance proves unfeasible. What we are talking about here in both policy and practical terms is integrated land management, and given continuing constraints upon resourcing and delivering environmental objectives, the single biggest reason why this should have political traction is because to do otherwise is more expensive in the long run.

This is why, although sponsored by the Department of Culture, Media and Sport, Historic England's (formerly English Heritage) relationship with the Department for the Environment, Food and Rural Affairs is such an important one. Our Memorandum of Understanding with them (signed in 2013 and updated) establishes regular contact and the value of dialogue (in the form of the "No surprises" principle). It also maps areas of overlapping interest and those aspects of the National Heritage Protection Plan in which Defra may have interests. Historic England clearly stresses that the historic environment should not be seen as a burden – it represents an opportunity for land managers, owners, communities and businesses, and in these terms it is right therefore to raise awareness of its potential. Landscape is a common currency between the work of DCMS and Defra, and for this reason English Heritage was a contributor to the ELC Action Plan, reporting to Defra on its own activities where these met the aims of the ELC, or contributed to national landscape policy. This has remained an objective for the new heritage agency Historic England.

The Ecosystem Approach presents a challenge with Cultural Services seen largely as 'perceptual' with 'hard' cultural measures such as visits to National Trust and English Heritage properties being considered in the National Ecosystems Assessment. Whilst the subsequent National

Ecosystems Assessment follow-on phase had work streams looking at shared, plural and cultural values, there was still a reluctance to recognise and address heritage within any of these areas. The Arts and Humanities Research Council funded work looking more closely at cultural and heritage values within the Ecosystem Approach. Whilst this was extremely welcome, it remains to be seen what if any traction this will have in policy terms. Natural Capital may represent a bigger challenge still.

World Heritage – integrating cultural and natural heritage

England's World Heritage Sites provide some impressive examples of integrated land management. A World Heritage Site as big and complex as Hadrian's Wall has presented some challenges – not least balancing the occasionally competing needs of domestic designations such as SSSIs and Scheduled Monuments. The presence of a National Trail, which recognises the value of access and tourism for the future management of the wall, has also meant careful consideration of the wider impacts upon landscape and setting, alongside an opportunity in terms of rural economic regeneration and local business diversification. Close dialogue between the multiple ownerships, and also the agencies responsible for the different aspects of management has been essential (see also Nigel Mills, this report). The Cornwall and West Devon Mining Landscape World Heritage Site offers another example of effective partnership. Here a long list of bodies including the Cornwall Wildlife Trust, Natural England, the National Trust, Cornwall Council, Devon County Council, English Heritage and the Heritage Lottery Fund have collaborated not only to produce a collective vision, but just as importantly, to unlock funding from the European Agricultural Fund for Rural Development (primarily in the form of the Environmental Stewardship Scheme).

Economic opportunity

Domestically, the need to comply with European Directives and to deliver elements of the Natural Environment White Paper were the primary policy drivers for setting the objectives of the Rural Development Programme 2014-2020. This, together with reduced funding available for new agri-environment agreements (due to existing commitments and decisions upon modulation), risks a much reduced profile for the historic environment. Given the constraints upon resources it is, however, more important than ever to look for opportunities for collaborative working, and, reflect other objectives such as rural economic growth. We should also recognise that the conservation and management of heritage (or indeed nature) is not merely an end in itself.

As an example, joint work by English Heritage and Defra on the repair of traditional farm buildings, a key but threatened part of our upland landscapes, showed not only that two thirds of these buildings would have become derelict without the conservation work, but that it created collateral benefits including employment, support for craft skills and also that every £1 of repair work generated £2.49 for the local economy.

Repairing the traditional dry stone walls at Hafod Y Llan farm, Snowdonia © NT Images/Paul Harris

Conserving our rural heritage (within World Heritage Sites, protected landscapes, and also outside them) can boost farm business diversification and rural tourism (by enhancing high quality landscapes). In 2016 cultural heritage-based tourism was estimated to account for £4.8 billion pounds in Gross Domestic Product and 103,000 jobs which rises to nearly £8.8 billion in GDP and 191,000 jobs with the inclusion of natural heritage (Oxford Economics, 2016)

Given these staggering estimates – whether it be cultural or natural heritage – to ignore their potential is very much a missed opportunity.

References

Oxford Economics (2016). *The Impact Heritage Tourism for the UK Economy*, 2016 Oxford Economics, 40pp.

Geodiversity – a cultural template

Jonathan Larwood, Senior Specialist – Geology and Palaeontology, Natural England

Geodiversity is the "the natural range (diversity) of geological (rocks, minerals, fossils), geomorphological (landforms, topography, physical processes), soil and hydrological features" (Gray, 2013). Where biodiversity refers to biotic diversity, geodiversity represents abiotic diversity.

Geodiversity is here considered in terms of its influence on the character of landscape, associated habitats and species, and in particular, the relationship between geodiversity and people in shaping and defining our relationship with, and response to, the natural world. Examples are drawn from a number of England's cultural World Heritage Sites to illustrate geodiversity as a cultural template.

Carboniferous mountain building

Towards the end of the Carboniferous Period 300 million years ago, the continental collision that formed the supercontinent Pangea, and its associated mountain building and igneous intrusions, produced the raw resources for the south west England mining industries and defined the northern edge of the Roman Empire.

Cornwall and West Devon Mining Landscape World Heritage Site: the Cornubian granites (Carnmenellis, St Austell, Bodmin and Exmoor), a result of this period of mountain building, today define the landscapes of south west England forming upland moors with deeply weathered Tors. Associated mineralisation led to the precipitation of a range of mineral ores, notably copper and tin, and the source of the mineral wealth of Cornwall and Devon. The development of a mining industry through the 18th and 19th centuries established the region as a global leader in the development of mining technology and dominant global producer supplying two thirds of the world's copper in the early 19th century. These technologies shaped the growth of the Industrial Revolution and were adopted the world over. This relationship between natural resource (geodiversity), industrial growth that has defined an industry, and the landscapes of Cornwall and West Devon, underpins the area's outstanding universal value (OUV).

Hadrian's Wall (Frontiers of the Roman Empire World Heritage Site): the same Carboniferous mountain building led to the emplacement of the dolerite Whin Sill across northern England. Today this forms the Farne Islands,

Hadrian's Wall and Milecastle looking eastwards along the Whin Sill Escarpment and towards Crag Lough © NT Images/Chris Lacey

crops out on the coast at Lindisfarne and under Dunstanburgh Castle, forms High Force on the River Tees (England's largest waterfall), and a prominent upland crag to the west of Newcastle. This last outcrop of the Whin Sill provided the central naturally protective route for Hadrian's Wall (begun in AD 122) which stretches 135km from the east coast at Wallsend to the Solway Firth on the west coast. Geodiversity both defines the route of Hadrian's Wall and provides the raw materials for its construction: Carboniferous sandstone in the east, dolerite from the Whin Sill centrally, and Triassic sandstone in the west (see also Nigel Mills, this report).

Pleistocene ice advance and retreat

Durham Castle and Cathedral World Heritage Site: over the last two million years northern Europe has experienced repeated advance and retreat of ice, extreme cold with intervening warm periods – the Ice Ages. This has had a major impact on the landscapes of northern Europe, eroding, depositing thick sequences of glacial sediments, and in many ways shaping the landscapes we are familiar with today. As the last Ice Age came to an end (Devensian

Durham Castle and Cathedral World Heritage Site – the incised River Wear meander has created the protective cathedral and castle peninsular and steep wooded river banks wrapped around the centre of Durham City © J D Whitakker

c.100,000-12,000 years ago) melt water produced vast rivers and the land started to uplift rapidly as the weight of ice was removed (a process known as isostatic rebound). As a consequence rapid erosion has cut deep gorges and steep sided river valleys into the underlying rocks. In north east England this is typified by the narrow gorge-like coastal Denes cut into the Permian Magnesian Limestone and the deepening of the Tyne and Wear Rivers. In Durham the meandering River Wear formed a deeply incised valley cutting through underlying Carboniferous Coal Measures. The resulting peninsula high ground (surrounded on three sides by the incised River Wear meander) provided the protected and defendable location for the community of St Cuthbert and the later Prince Bishops in the volatile world of northern England. The present day Durham Cathedral and Castle were built in the 11th and 12th centuries, their OUV reflecting the outstanding Norman and early gothic architecture and the associated relationship with the Saints Bede and Cuthbert.

Creswell Crags (UNESCO Tentative List World Heritage Site): Creswell Crags, on the border between Derbyshire and Nottinghamshire is a narrow gorge cutting through the southern end of the Permian Magnesian Limestone (see also Roger Shelley, this report). As with the Durham River Wear and coastal Denes, the gorge was cut in response to post glacial melt and uplift. Today Creswell Crags includes a number of caves which show evidence for repeated occupation over the last 55,000 years and most notably the presence of *in situ* cave art including deer, bison and ibis. Here geodiversity, through the formation of a cave system in Magnesian Limestone, and its location just to the south of the last major ice advance (Devensian), has provided a suitable location and climate for prolonged habitation, palaeoenvironmental evidence, and a basis for the Tentative List nomination.

Fountains Abbey and Studley Royal – naturally cultural or culturally natural?

Studley Royal Park and the ruins of Fountains Abbey World Heritage Site is located to the south west of Ripon in North Yorkshire. It provides a succinct and explicit demonstration of "*geodiversity as a cultural template*" (see also Sarah France, this report).

Fountains Abbey is defined by and built from the geodiversity on which it is sited. The steep sided valley of the River Skell, formed by glacial melt waters (as with Durham and Creswell Crags), provided a secluded and protected location for settlement and the establishment of a Cistercian monastery. The river cuts through Upper Carboniferous sandstone, overlain by Permian Magnesian Limestone. The sandstone was quarried directly to construct the Abbey; the old quarry

The chancel of St Mary's Church displaying geodiversity (notably the green and red marble columns) sourced from across Europe © Nick Garrod

faces are still visible on one side of the valley. Magnesian Limestone was quarried locally (near Ripon) for the later construction of the main tower and used for decorative carving and lintels. Dark crinoidal limestone columns, which once lined each side of the nave, were sourced from nearby Nidderdale – a unique and localised use as a decorative marble.

In the 18th century, John Aislabie (and his son William) designed the landscape of Studley Royal Park and integrated the River Skell into the water gardens of ponds, canals, and lakes which are defined by the natural shape of the landscape. This design takes advantage of natural vistas along the course of the river and emulates the pattern of the river: The half-moon reservoir follows the natural curve of the river and the naturalistic Seven Bridges walk was modified to emulate a Chinese landscape reflecting the similarity of the steep-sided and rocky Magnesian Limestone gorge.

Lastly there is St Mary's Church within the World Heritage Site; a masterpiece of Victorian Gothic architecture, designed by William Burges in 1871. Here geodiversity reflects a new cultural template. The exterior is built from local Magnesian Limestone and Carboniferous sandstone, and roofed with green slates from the Lake District. The highly decorative interior, however, is a magpie's nest of geology with decorative marbles gathered from across Europe, North Africa and North America. Where the earlier use of geological materials has reflected local availability and therefore local geology, by the mid-19th century, improved transport networks (notably the railways) enable the importation of rare and spectacular decorative stone from around the world.

Conclusion

Geodiversity both has a strong and often defining influence on cultural identity. Explored here through World Heritage this pattern and relationship is repeated in relation to where people choose to live, the provision of the raw materials that support our livelihoods, and characterise our architecture. Fountains Abbey epitomises this relationship: distant geological events (Carboniferous rivers and Permian seas) have provided the raw materials for building (sandstone and Magnesian Limestone), more recent environmental changes (the Pleistocene Ice Ages) have carved the landscape providing a protected place to settle, and the continued evolution of the landscape and the flow of the River Skell have brought these influences together in the designed Aislabie landscapes of Studley Royal Park.

Natural defines cultural and cultural responds to natural. Understanding, managing and presenting the 'whole' story (notably geodiversity in this instance) adds new values to the way people experience and respond to both cultural and natural heritage.

References

Gray, J.M. (2013). *Geodiversity: Valuing and Conserving Abiotic Nature* (2nd Edition), Wiley, London.

Nature in the UK's World Heritage Sites

Chris Mahon, Development Director, World Heritage UK and **Alma Roberts**, Campaigns Manager, WWF UK

Context

'Nature in the UK's World Heritage Sites' began as a preliminary research project to begin to better understand the presence of 'Nature' (biodiversity, geodiversity, wildlife habitats and species) in the UK's (then) 30 UNESCO World Heritage Sites including those in UK Overseas Territories. Four 'Tentative List' sites were also included in the research. The project is a collaboration between WWF-UK and World Heritage UK assisted by the UK's WHS Coordinators.

Nature is everywhere. Making the very fabric of ancient buildings and monuments and on their walls, in the grounds of stately homes, in the canals and spoil heaps of our industrial past, in the air above our towns and cities and especially in the seas and islands of our territorial responsibilities abroad. However, knowledge of nature was thought to be generally lacking in most UK World Heritage Sites, or at least dispersed. It was considered useful to understand better and recognise the contribution to nature conservation made by "cultural" and "mixed" World Heritage Sites as well as those inscribed as "natural" sites and to begin to gain an appreciation of their collective value..

Common spotted orchids (*Dachtylorhiza fuchsia*) can be found in many of the UK's coastal and inland World Heritage Sites where there is suitable habitat for it © Chris Mahon

Methodology

Using a database of contacts for each World Heritage Site (primarily site Co-ordinators), each site was contacted three times by email to explain the project and requested documented examples of work carried out with reference to nature at each site (e.g.. biodiversity audits and action plans, guide books/nature trails, interpretation boards, statutory and non-statutory planning designations, species that rely on the site as habitat etc.)

Once responses were collated, a structured survey took place to answer a set of questions which aimed to provide the basis for some statistical analysis and interpretation. The survey was followed up where necessary with telephone interviews to clarify outstanding points of clarification.

Results

30 World Heritage Sites plus 4 Tentative List sites were contacted (t = 34) with additional internet research where there was nil or limited response. There were 20 replies (59%) to the background data call, resulting in access to 12 relatively 'good datasets', supplied from 12 sites (35%). There were 11 replies (32%) to the survey questionnaire of which 5 were from the same sites as replied to Stage 1.

Categories: it was established that for the UK there are the following categories at the time of survey:

- 30 inscribed World Heritage Sites
- 4 are listed as 'Natural' sites
- 1 is a 'Mixed' site
- 25 are 'Cultural' sites
- 4 World Heritage Sites are in UK Overseas Territories
  13 Tentative List sites are listed for the UK by UNESCO – only 4 of these are part of this research (The Flow Country, England's Lake District, Slate Industry of North Wales and Jodrell Bank). Gorham's Cave Complex is included in the 30 as it was inscribed in 2016.

The four World Heritage Sites in the UK's Overseas Territories contain a rich biodiversity and they have many rare and endemic species, coral reefs and open ocean, including at least one whale sanctuary © Tanguy Sauvin

Area: from the individual figures available on the UNESCO World Heritage List website, when added together, the 26 inscribed World Heritage Sites properties in the UK cover an area of over **60,000 ha** (600 sq. km), nearer **100,000 ha** if their buffer zones are included.

The 4 World Heritage Site properties that are in UK Overseas Territories add a further **11,885 ha**.

The buffer zone for the Gough and Inaccessible Island World Heritage Site is 390,000 ha on its own, nearly 4 times the total area of all UK sites and their buffer zones put together.

Protected Areas: the following list indicates the number of World Heritage Sites that have an association with a particular category of protected area. The IUCN definition of a protected area is "a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature, with associated ecosystem services and cultural values" (IUCN, 2008; Stolton *et al*., 2013), and the first seven designations in this list meet that criteria according to recent work published by the IUCN National Committee UK (Crofts *et al*., 2014). The remainder of the designations, most of which offer some non-statutory consideration for nature conservation in the UK planning system, are included despite not meeting the formal definition as they are locally relevant and potential sources of information.

These associations include large designated areas within which World Heritage Sites exist, protected areas contained within those sites and their buffer zones and, occasionally, protected areas which are immediately adjacent to them. Note: some World Heritage Sites may have more than one association with a particular designated area (eg. 2 SSSIs in a site).

Table 1 Numbers of World Heritage Sites that have an association with protected/designated areas for nature conservation

No of WHS	Protected/Designated area
2	Ramsar Site
7	Special Area of Conservation (SAC)
5	Special Protection Area (SPA)
2	National Park
10	Areas of Outstanding Natural Beauty (AONB)
2	National Nature Reserve
41	Site/Area of Special Scientific Interest
2	Local Nature Reserve
6	Local Wildlife Site
1	Nature Improvement Area
1	Marine Nature Reserve
2	Regionally Important Geological Sites
31	County Geological Sites (Cornwall and W Devon)
10	Other designations

Table 2 Overview of some habitats represented in the UK's World Heritage Sites

Considered 'cultural'	Considered 'natural'
Built environment	Ancient woodland
Canals	Acid/calcareous/marshy grassland
Quarries and mines	Moorland and peatland
Gardens	Scrub
Parkland and veteran trees	Rivers and streams
Stone walls	Marine
Hay meadows	Intertidal
Lakes	Cliffs and sea caves
Ponds	Coral atoll

Habitats: a wide variety of habitats are represented in the UK's World Heritage Sites. An overview of some of these can be seen in Table 2 below. Many examples of habitats with considerable value for nature are found in World Heritage Sites inscribed for cultural reasons. Some of these have UK National Biodiversity Action Plan (Defra 2012 *UK Post-2010 Biodiversity Framework*) targets associated with them. Further investigation, for example using JNCC National Vegetation Classification Habitat types, would extend the detail of this list, particularly if more detail is included for World Heritage Sites in UK Overseas Territories.

Species: as expected from a wide range of habitats, a representative assemblage of species is found. More work is required here as not all World Heritage Sites have

One of the last strongholds of the red squirrel (*Sciurus vulgaris*) is the recently inscribed English Lake District World Heritage Site © Wikipedia Commons

comprehensive or up to date audits of the biodiversity in these areas. However, it is relatively easy to get an impression from the information the research has generated that there is a considerable volume of species of nature conservation interest in all categories of World Heritage Sites, and this includes some National Biodiversity Action Plan (Defra, 2012) priorities and other species of conservation concern. The presence of bats is frequently noted in World Heritage Sites. Indeed, it may be possible to suggest that each World Heritage Sites may have at least one flagship species or habitat of its own to champion. Some examples are included in Table 3 below.

Geodiversity: geodiversity is also well represented within World Heritage Sites both explicitly (for example the Giant's Causeway, where it is the OUV) or implicitly where it strongly influences the character, culture and history of a site (such as the Cornish Mining Landscape World Heritage Site). Few respondents, however, directly highlighted their geodiversity and there is clearly a future opportunity to develop this aspect of nature in the UK's World Heritage Sites and beyond (see Larwood in this report). In Table 3 an indication is given of the relative merits/value of geodiversity in relation to World Heritage: high = defines OUV, strong overlap with geodiversity designation; medium = geodiversity strongly influences OUV through landscape character or cultural/ industrial history; low = geodiversity is present and of interest but does not have a strong influence on OUV (pers. comm. Jonathan larwood).

'Relative Nature Value Rating (RNVR)': This is an indicative comparison, based on available information on the 30 inscribed WHS + 4 Tentative List sites and designed to give an impression of the collective nature value of the UK's World Heritage Sites. It is based on the level and number of protected areas, number of notable species, habitats and other factors.

- 9 World Heritage Sites have Significant RNVR (26.5%)
- 10 World Heritage Sites have High RNVR (29.5%)
- 6 World Heritage Sites have Medium RNVR (17.5%)
- 6 World Heritage Sites have Low RNVR (17.5%)
- 4 World Heritage Sites have Unknown RNVR (12%)

On this basis over half (56%) of all the UK's World Heritage Sites + 4 Tentative List sites have a significant or high level of nature interest.

Recommendations and conclusions

- This research should be regarded as the first phase of potentially ongoing work on this subject. It has provided a useful baseline of information for some sites but indicated that greater participation is required to develop a more comprehensive data set.

- Participation levels by site Co-ordinators were variable – timing and perceived relevance may be issues in participation. The summer period is a busy time for World Heritage Sites Co-ordinators and responding to research questions in this season might not make it to their priority lists. There may also be a question over the relevance of an interest in nature for sites that are inscribed for their cultural significance. This can be explored with them further. For sites such as the Palace of Westminster and the Tower of London, it may indeed be the case that biodiversity interest is minimal, but for large cultural sites there are likely to be nature interests which are under-represented here.

- Some responses were comprehensive, resulting in 12 'good datasets', but there are still gaps in the information database which should be filled with further work. An emphasis on this may result in an opportunity for incidental inclusion in future World Heritage Site Management Plans.

Now only found in northern Scotland the great yellow bumblebee (*Bombus lucorum*) can be seen at the Heart of Neolithic Orkney World Heritage Site © James Lindsey, Ecology of Commanster

Table 3 World Heritage Sites and notable species/habitats/geology associated with them

World Heritage Site	Notable species/habitat	Geodiversity (h/m/l)
Blaenavon	Skylark/moorland	m – coal and iron resources strongly influence OUV
Blenheim Palace	Sand martin/garden	l – internal, exterior fabric of Blenheim Palace
Canterbury Cathedral	Churchyard	l – internal, exterior fabric of Cathedral
Castles and Walled towns of Gwynedd	Rocky Sea Spurry/intertidal	l – internal, exterior fabric and use of natural defensive location
City of Bath	Peregrine falcon/river	m - local building stone, hotsprings, influence of topography on city design
Cornish Mining Landscape	Petalwort/mining habitats	m – mineralisation strongly influences OUV and overlap with geo designation
Derwent Valley Mills	Water vole/canal	l – association with landscape and water system
Dorset and East Devon Coast	Puffin/vegetated sea cliffs	h – geodiversity is OUV
Durham Cathedral	Woodlands/riverbanks	m – character of WHS peninsula underpinned by geodiversity, internal-external fabric of buildings
England's Lake District (TL)	Red squirrel/lakes	h – geodiversity defines character of Lake District, overlap with geo designation
Flow Country (TL)	peatland	
Forth Bridge	Common dolphin	
Frontiers of the Roman Empire	Great crested newt	m – geodiversity defines route and fabric of wall
Giant's Causeway	Whorl snail/sea cliffs	h – geodiversity is OUV
Gough and Inaccessible Island	Inaccessible rail	
Gorhams Cave Complex	Sea caves	h – late Pleistocene evidence defines OUV
Great Spas of Europe	n/a	m – spas intimately linked to mineral water source and hot springs
Heart of Neolithic Orkney	Great yellow bumblebee	l – associated landscape and use of stone
Henderson Island	Henderson crake/coral atoll	
Historic Town of St George, Bermuda	To be explored	
Ironbridge Gorge	Ploughman's Spikenard/hay meadow	m – raw materials defining OUV and gorge
Jodrell Bank (TL)	Wildflowers/butterflies	
Liverpool Mercantile City	Atlantic Salmon	
Maritime Greenwich	Oak bush cricket	
New Lanark	Brook lamprey	l – association with landscape and water system
Old and New Towns of Edinburgh	Swift	l – strong link to topography defined by geodiversity
Palace of Westminster	peregrine falcon	l - internal, exterior fabric of Palace
Pontcysyllte Aqueduct and Canal	Otter	
Royal Botanic Gardens, Kew	Breeding birds and winter visitors	
Saltaire	Grass snake/canal	l - association with landscape and water system
Slate Industry, North Wales (TL)	Feral goat	m –
St Kilda	Gannet	h – defining character of OUV
Stonehenge and Avebury	Stone curlew/great bustard	m – strong influence landscape/setting and origin of stones
Studley Royal Park and Fountains Abbey	Bats	m – strong influence on landscape design and interior/exterior building fabric
Tower of London	Raven	l – internal, exterior fabric

Grass snakes can be found at Saltaire World Heritage Site and other cultural sites which include suitable habitat © Anton Vorauer/WWF

Otters (*Lutra lutra*) breed at Pontcysyllte Aqueduct and Canal World Heritage Site © NT Images/Jim Bebbington

- The UK's World Heritage Sites cover a substantial area of the UK (at least 60,000 ha) and would increase substantially if some of the Tentative List sites (in particular England's Lake District and the Flow Country) are successfully inscribed in future. The inclusion of the area of sites in UK Overseas Territories has a significantly positive effect on the total.

- Many World Heritage Sites are found within protected areas and have protected areas within their boundaries. This information is helpful in identifying umbrella bodies with whom to have further discussions (Association of National Park Authorities, Association of Area of Outstanding Natural Beauty, and the statutory nature conservation bodies of the home nations).

- There are a wide variety of habitats and species in World Heritage Sites including national Biodiversity Action Plan priorities. Importantly, many examples of habitats and species valuable for nature conservation are found in sites inscribed for their cultural attributes. The presence of bats for example, is frequently noted in World Heritage Sites.

- Geodiversity is a widely present but often undervalued resource. It often has a strong influence on the history, location and character of cultural and natural World Heritage and links/cross cuts cultural and natural values.

- Every World Heritage Site could find a species and/or habitat to champion. While not detracting from the cultural reasons that a site is inscribed, its connection to the natural environment could be symbolised by the adoption of a species or habitat to champion as a practical conservation mechanism and as a public awareness and promotional tool.

- Considering that only four World Heritage Sites are inscribed for 'natural' criteria, and one for 'mixed', the research suggests that over half (53%) of all the UK's WHS + 4 Tentative List sites have a significant or high level of nature interest, including a contribution to make to achieving nationally important habitats and species conservation targets.

- More work is required for further investigation and to complete a more comprehensive dataset. This could include activities such as a project in collaboration with local wildlife trusts and local record centres who hold existing data and can generate new records and mapping through their staff and volunteers, for example, through a series of 'Bioblitzes'.

References

Crofts, R., Dudley, N., Mahon, C., Partington, R., Phillips, A., Pritchard, S. and Stolton, S. (2014). Putting Nature on the Map: A Report and Recommendations on the Use of the IUCN System of Protected Area Categorisation in the UK. United Kingdom: IUCN National Committee UK.

Defra (2012) UK Post-2010 Biodiversity Framework JNCC and Defra 2012.

IUCN (2008) - Dudley, N. (Editor) (2008). Guidelines for Applying Protected Area Management Categories. Gland, Switzerland: IUCN. 86pp.

Stolton, S., Shadie, P., and Dudley, N. (2013). IUCN WCPA Best Practice Guidance on Recognising Protected Areas and Assigning Management Categories and Governance Types, Best Practice Protected Area Guidelines Series No. 21, Gland, Switzerland: IUCN.

NATURAL WORLD HERITAGE SITES

The Giant's Causeway: Culturally Natural or Naturally Cultural?

Max Bryant, General Manager, North Coast, Northern Ireland, National Trust
Giant's Causeway and Causeway Coast World Heritage Site whc.unesco.org/en/list/369

Visitors at the Giant's Causeway © NT images/Ben Selway

The Giant's Causeway World Heritage Site is inscribed under criteria vii and viii of the World Heritage List for its geological and geomorphological values, its history of scientific study and its exceptional landscape value. It is a natural World Heritage Site, but how cultural is the Giant's Causeway?

The Giant's Causeway natural lava plateau is the basis for its World Heritage status, yet the Causeway is widely known as a cultural icon and is named on a cultural basis in reference to the legend of two competing giants. It is widely used as symbolic of Northern Ireland; if it is not about the Giant's Causeway directly, indirectly it forms a backdrop when representing the country, notably for the arrival of the Olympic torch in 2012. For the people of Northern Ireland it's about myth, legend and story. It's about being a symbol of the country, and it's about people's livelihoods and local ownership.

This interwoven cultural-natural heritage has been central to the redevelopment of the new Causeway Visitor Centre, and in particular, extending this connection to its link with local communities, and their own history and culture.

Presenting the Giant's Causeway

The first mention of the Giant's Causeway in literature was in 1693 (Doughty, 2008). Of course it was known to locals but there is no record of what they called it. Paintings and engravings in the 18th century widened visibility and curiosity in the Causeway and, despite the challenge of travelling to the Antrim Coast, by the 1730s tourism (amongst the well-to-do classes) was well established.

Today 750,000 people visit the Giant's Causeway each year, representing 186 different nationalities. The Visitor Centre (opened 2012, designed by Heneghan Peng Architects) sits

within the line of the cliff top landscape where its grassed roof blends into the coastal fields. The exterior of black polished basalt columns emulates the columnar basalt of the Causeway. Reflecting the strong link between nature and culture, the story of the Causeway coast told in the Visitor Centre connects across themes:

- first, geodiversity: the volcanism that formed the physical landscape and the famous basalt hexagonal columns of the "Causeway";
- second, biodiversity, (which includes rare plants such as the Irish lady's tresses (an orchid) and birds such as the red-billed chough) and how it is managed;
- third, cultural identity, and land and sea use and myths of the north Antrim coast.

In deciding how to tell the Causeway story we have tried to look through the eye of a visitor (Crawford, 2016) and ask: what do people seek when they come to the north Antrim coast and can we move, teach and inspire them? We use our staff to tell the stories of the Causeway coast, including the central myth of the battle between giants. This has worked both for visitors from afar and, particularly, for the people who live on and around the Causeway coast where previously there was a disconnect between the National Trust in this World Heritage Site and the community for whom this is part of their culture – through history and living there today.

Geodiversity

In the Visitor Centre, the formation of the Causeway is illustrated through interpretation displays, and through video, described by geologist and broadcaster Iain Stewart. Its origin links to the early opening of the North Atlantic, 60 million years ago, which lead to a series of eruptions with associated basaltic lava flows. Slow cooling led to the formation of columnar basalts (at least 40,000 hexagonal columns) of the Giant's Causeway and the coastal exposures of the wider Giant's Causeway and Causeway Coast World Heritage Site. Different interpretations of columnar basalt origins are considered including early comparisons to bamboo forests and the Creationist view. We also cover the 18th century debate between the Neptunists (who considered all rocks to have been deposited by a retreating flood and igneous rocks to be an aqueous precipitation) and the Plutonists (who viewed rocks as volcanic in origin and eroded to produce sedimentary rocks).

Understanding that the Giant's Causeway is a natural and changing (despite its apparent permanence) landscape is critical. Active landslips and instability affect access and visitor experience (through path diversions and closures), and visitors can impact on the site. Diversifying routes, transporting people to and from the cliff tops, and providing new visitor experiences help guide and manage people and their impact on the site. The messages presented around formation, cultural identity, and natural phenomena all help visitors understand the value and fragility of the coastline.

Biodiversity

The Causeway area is notable for its maritime cliffs and slopes in which there are examples of wet and dry heathland, and lowland meadows. Nearer to the shore are saltmarsh and fens. The intertidal habitats and species are also important and there is a rich invertebrate assemblage with a number of notable species, including snails, craneflies, and weevils. Breeding and wintering birds, notably significant populations of breeding fulmar and black guillemot, are present. A 2015 'Bioblitz' in White Park Bay to the east of the Giant's Causeway yielded 1168 species records including a specimen of a large beetle, the forest chafer, from northern Europe, the first record since 1915.

Cultural identity

The "legend" of formation, which gives its name to the Causeway, is the dispute between two giants – the Irish Finn MacCool and his Scottish rival, Benandonner. Finn is said to have constructed the Causeway, extending to the Scottish island of Staffa (where the basalt is exposed today in Fingal's Cave), and Benandonner, to have ripped it up as he escaped to Scotland. This is the most dominant and visual story of the Giant's Causeway but equally important are the wider and local cultural links that are explored. Up until the 19th century rowing boats were the main form of transport along, and between the islands of the north Antrim coast. The fishing industry and sea transport is celebrated through the display of the "Arrow" rowing boat (at the nearby National Trust Community Learning Centre) which was raced by local fishermen. Potatoes provide another surprising part of the Causeway's history. John Clarke (1889 -1980) who for much of his life lived and farmed close to the Giant's Causeway, was widely known as the "potato wizard" reflecting his expertise in the development of new varieties. Best known is "Maris Piper" which, today, is the most widely grown potato in the UK.

Conclusion

The Giant's Causeway is a natural World Heritage Site and exists only because 60 million years ago the Atlantic Ocean started to open erupting lava which gradually cooled to form the columnar basalt with which we are familiar. It is, however, through its cultural identity that people are engaged, awe struck and inspired by the Giant's Causeway. Through such connections people learn about its origin and formation, the legends and communities of the Causeway Coast, and the dynamic and changing nature of this coastline. Culturally natural or naturally cultural - you decide.

References

Crawford, K.R. (2016). A geoheritage interpretation case study: the Antrim Coast of Northern Ireland. In: Hose, T. (ed) *Geoheritage and Geotourism a European Perspective* Heritage Matters, 19, The Boydell Press, 205-217.

Doughty, P. (2008). How things began: the origins of geological conservation. In: Burek, C.V. and Prosser, C.D. (eds) *The History of Geoconservation, Geological Society*, London, Special Publication, 300, 7-16.

Is it all about the rocks?

Sam Rose, Jurassic Coast World Heritage Site Manager
Dorset and East Devon Coast WHS whc.unesco.org/en/list/1029

My specific challenge was to reflect on the influence on, and relevance of, cultural heritage and cultural perceptions in the context of the Jurassic Coast, as a natural World Heritage Site. This paper considers this through examples of culture/nature interaction, particularly in terms of recognised *cultural heritage values*, and *cultural practice or activity*. A brief analysis of this can be seen at the end. The examples are also described in the way in which they can be inspirational or can engage people with the natural heritage.

Introduction

Stretching from Exmouth in East Devon to Studland Bay in Dorset, the Dorset and East Devon Coast World Heritage Site (aka Jurassic Coast) is England's only World Heritage Site designated for purely natural criteria. It has an outstanding combination of globally significant geological, paleontological and geomorphological features, created by ongoing natural processes. Put simply, the coast is the only place in the world where you can see rocks and fossils from the Triassic, Jurassic and Cretaceous Periods in a near-complete continuous sequence – the walk from one end to the other is 95 miles through 185 million years of geological time (Dorset County Council, 2000; Badman *et al*., 2003; Scriven, 2016).

So it has some truly great rocks, some of which show in the varied stratigraphy, some take the form of outstanding fossils and others the shape of a magnificent rock arch, dramatic sea stacks and vast shingle beaches. But is it all about the rocks? What does the place mean to the people who live there, visit it and love it? For many the sense of place is about stillness or storms, others about walking or relaxing, and others about fossil collecting. In managing the World Heritage Site our challenge is sometimes to step away from the specific reason for which a site is designated, and explore in more detail how people perceive it and use it in their lives, and only by unlocking the links between nature and culture can we really understand what drives people to a place, time and time again.

Culture / nature interactions

Quarrying

The coast has had many uses over the millennia, whether for resource extraction, recreation or defence, to name but three. Quarrying is an industry that defines many places along the Jurassic Coast, particularly in Purbeck and Portland, and also around Beer in East Devon. Even Blue Lias from the cliffs at Lyme Regis was extracted to make hydraulic cement; you can still see remains of the old trackway on the Monmouth beach wave cut platform. Tilly Whim caves near Swanage produced rock for building forts on the south coast, and of course much of London is built of, or more recently clad with, Portland stone.

For many people this link is *the* cultural / natural interaction. Robert Hooke, the eminent 17th century architect and surveyor and experimental scientist among many investigations developed a theory of fossilisation and the concept of extinction through detailed (microscopic) examination of Portland stone during post- Great Fire reconstruction in London. More recently, an outstanding set of sauropod footprints have been exposed at Keats Quarry in Purbeck, an area with a long and current history of quarrying supplying (among other building resources) the decorative Purbeck Marble. Quarrying, as well as being a way of life and supporting livelihoods, exposes rocks to people often for the first time, and the interaction not only has its own commercial value, but can allow science to be furthered, secrets to be uncovered, and stories told through the rocks in the coast, whether in quarries or not.

Defences

Sandsfoot castle, one of Henry VIII's forts and made of Portland stone rubble, lies directly on the World Heritage Site within the Portland Harbour shore and had a purpose to repel invaders to Portland Harbour. In contrast, and less than two miles distant from the castle is Chesil Bank (or beach as it is more commonly known), a natural shingle spit that joins the mainland with the Isle of Portland to form a barrier beach. This is a natural defence for the Fleet lagoon and other property behind it, and is one of the key geomorphological features recognised in the OUV of the World Heritage Site.

View from Ridge Cliff looking west to Golden Cap, Dorset © Jurassic Coast Trust

The most southerly mile of the beach, however, is managed as a sea defence for the heavily populated Portland Underhill area, so is restricted from acting naturally. This conflict between natural forces and property – for some people the very essence of the nature / culture interaction – is, and always will be the most challenging part of site management and needs to be dealt with pragmatically and sensitively.

Recreation

Not many people automatically associate recreation with the Earth Sciences, but in fact geology underpins much of what people do for fun in the outdoors. From coasteering to hang-gliding, landscape photography to expressive dance on the beach, it is the landscape that either provides the physical 'set' on which we have fun, or the magical scenery which inspires us. Even something as basic as a gently sloping sandy beach, such as that used at Weymouth by George III in (arguably) inventing the "seaside holiday" in 1798 is a result of the geology and geomorphology characteristic of the area.

The Jurassic Coast is particularly important for certain groups, such as hikers, whether doing a single day's walk or a full eight day trek along 185 million years of Earth's history. To them the coast means challenges, windswept vistas, friendship and a strong sense of place. The geology defines their walk whether they know that or not, and many choose to engage with it more deeply through an interest in the landscape. Providing the opportunity for these people and many others, to find out more about the landscape they are walking through is another key part of site management; something that can be achieved through visitor centres, portable and static interpretation. The link we make in our strapline, "walk through 185m years of time in 95 miles of outstanding World Heritage coastline" provides a natural heritage context to a very cultural activity, and can add value in many ways to the experience.

Homes from stones

In terms of cultural perceptions of the natural world, and recognition of the natural heritage that makes up our landscape, what could be more meaningful than our homes? Not all of us are lucky enough to live in a stone cottage built of material not more than a mile from the house, but we have all driven through certain villages which are defined by houses of a certain type. Abbotsbury, Beer and Worth Matravers are three such places along the Jurassic Coast, where the mysterious hard stuff underneath all of that messy vegetation and soil is released, and out on display for all to see. In fact it is rare that people make the connection between the vernacular building stone of a village and the local underlying geology. Even less recognised, yet perhaps even more significant, is that these stones can show us what we often can't see along the Jurassic Coast because the cliffs are often steep and dangerous, and not always conducive to close up viewing. Like quarries, buildings expose the nature of our natural heritage, but unlike quarries, they are often appreciated by the masses.

Again, this provides opportunity for engagement, but only if the connection can be made obvious. Often it is the extreme

Herbie Treehead's Dinosaur Circus, Lyme Regis Fossil Festival © Jurassic Coast Trust

that can help to make those connections, such as the widespread use of Portland Stone in London and around the world, or the use of Beer stone in Exeter Cathedral. In trying to engage people with the Jurassic Coast on Portland, we refer to the stories of stone because this is the strongest cultural reference linking people's lives to natural heritage. Then going on to say that the stone is 145 million years old and part of a continuous sequence from Exmouth through to Studland encompassing the period of life from the dawn to the death of the dinosaurs. This is a huge leap to expect them to make, but one which they may engage with more, simply by looking at the fossils in the Portland stone that their houses are built from.

History, arts and literature

Other cultural perceptions and influences in the context of the Jurassic Coast are manifold. The naturally sheltered bays such as Lulworth Cove where settlements sprung up are examples of geomorphological process acting on natural weaknesses in the geology. Likewise caves where smugglers hid contraband have natural origins – Jack Rattenbury of Beer is part of the very fabric of the community.

The coast has been an inspiration to poets, writers, visual and other artists – John Fowles' French Lieutenants Woman was based on and relished the geology and position of Lyme Regis, and Thomas Hardy used the coast throughout his body of work. More recently a whole programme of Jurassic Coast-inspired arts initiatives were developed around the World Heritage Site, covering a very wide range of mediums from contemporary installations to traditional massed choirs.

Artistic practice, so often seen as the "go to" discipline when discussing culture, has proved to be a powerful glue in helping people to engage with their natural heritage on the Jurassic Coast. Those approaches that are most effective are often the ones that have their roots in the community or in crafts; using paper card and glue to make replica dinosaurs, cartoon animations of a changing world and storytelling, if done well, are tremendously powerful tools in our 'engagement' armoury.

History of Earth Science

Although not part of the criteria for inscription as a World Heritage Site, IUCN recognised in their technical evaluation the importance of the Jurassic Coast to the history of the Earth Sciences. William Buckland, Mary Anning and William Coneybeare are three of the more well-known palaeontologists of the early 19th century, and are all from the Lyme Regis area. Mary, with her brother Joseph, had a rare talent for finding and preparing 'sea monsters' such as ichthyosaurs and plesiosaurs, and even the first pterosaur found outside of Germany. Her skills at extracting, preparing, studying and drawing the fossils contributed to important changes in scientific thinking about the history of the Earth and prehistoric life. In popular culture, she was also referred to as the seller of the "sea shells on the sea shore", which underlies the commercial nature of her profession, which was a necessity for her and is something that continues today.

In contrast the "gentleman scientists" Buckland and Coneybeare could have considerable influence through their own work, and through bringing to attention the work of Mary Anning. Buckland's observations of the 1829 Bindon Landslide led it to be the first large-scale landslide ever to be studied, and Coneybeare is famous for, amongst other work, the first published descriptions of a number of prehistoric marine reptiles. Many people from Lyme Regis and the surrounding area are very proud of the association with their famous forebears. The work that they did helped to start a science, but the evidence on which they based their finding is just as evident today in new fossil finds and regular

Table 1. Cultural Heritage vs Cultural Activity

Cultural Heritage	Cultural Activity / Practice
• Not OUV, but is in other values, some recognised by UNESCO. • Provides context – particularly space and time • Often inspired by the natural heritage, it is a rich source of inspiration itself – e.g. Mary Anning • Defines the site in terms of man's activities • Helps people value it in terms of their own lives – human context • Provides landmarks	• Draws on the OUV and the other heritage values • Creative ways of meeting management objectives • Enables people to understand complex subjects • Leads people to improved valuing, ownership • Exciting and fun • Is part of management

landslides along the coast. Geology and rocks can be hard to relate to, but to make a link to a person and their actions can be much easier, inspiring and ultimately very engaging. For example, in 2015, a toy company chose to launch a female palaeontologist doll – Lottie – to an unsuspecting world on the 216th Anniversary of Mary Anning's birthday. The company has produced KS1 (age 5-7) education materials alongside this created by the Jurassic Coast Team and a contribution from the sale of each doll will go to the Jurassic Coast Trust, which can go back into supporting education, research or fossil acquisition; a perfect circle!

As already mentioned, the fossil collecting "industry" is very much alive and well in Dorset and East Devon. New finds are still being uncovered, and rescued from destruction by the sea, both by commercial and amateur collectors. It is a very egalitarian approach in that anyone, from an interested child to a seasoned collector, has the chance to find a fossilised animal or plant new to science. Management of the site requires the input and co-operation of the collectors as the main body of people who, by their activity, can lead to the conservation of specimens and the furthering of the science of palaeontology[16].

Cultural Heritage vs Cultural Activity: summary

This paper draws on natural heritage to explore the nature / culture link. Through the examples given it is possible to see the differences between cultural heritage values and activity or practice, which are important to tease out for site management. This is set out in table 1.

In order to realise this for the benefit of the World Heritage Site and its communities, there is a need for a clear management framework, a shared vision, partnership working, wide stakeholder and community involvement that demonstrates community benefit and effective coordination and communication. It is also valuable not to be too precious – as long as you set the framework up well, wonderful things can happen when you let people get on with it.

Conclusions

The management of the Jurassic Coast is influenced by our cultural heritage values in addition to those of the natural heritage, in all areas. We draw on our cultural heritage to make sense of what we see, and we use cultural practices and activity in specific ways to help people make sense of the site, and to help them engage and value it. In doing so, we are creating a new cultural heritage, profound in its own right, although only time will tell what is transient and what permanent. Making the connections can only be beneficial in meeting our global obligations as custodians of the site – and after all, the World Heritage Convention is a cultural construct

To come back to the question "Is it all about the rocks?", well, yes it is because that is the reason behind the designation of the World Heritage Site – itself a cultural construct – but underneath that there is so much more that stems from, is connected with, or simply dependent upon, the rocks.

And lastly, in telling our story "The Jurassic Coast – a mighty tale" condenses 250 million years into 5 minutes of animation written and illustrated by Tim Britton (2014) with the Jurassic Coast's fascinating past, present and future "… adding yet more layers to the toothsome cake of time"[17].

References

Britton, T. (2014). *The Jurassic Coast – a mighty tale*. Jurassic Coast Trust.

Brunsden, D. (2003). *The Official Guide to the Jurassic coast – a walk through time*. Coastal Publishing.

Dorset County Council (2000). *Nomination of the Dorset and East Devon Coast for inclusion in the World Heritage List*.

Scriven, S. (2016). *Fossils of the Jurassic Coast*. Jurassic Coast Trust.

[16] http://jurassiccoast.org/discover/things-to-do/fossil-hunting/

[17] Take a look here http://jurassiccoast.org/about/what-is-the-jurassic-coast/

CULTURAL WORLD HERITAGE SITES

“In All, Let Nature Never be Forgot”

Integrating the management of natural and cultural values at Studley Royal Park including the ruins of Fountains Abbey World Heritage Site

Sarah France, World Heritage Site Coordinator and Conservation Manager,
Fountains Abbey and Studley Royal World Heritage Site
Studley Royal Park including the Ruins of Fountains Abbey World Heritage Site
whc.unesco.org/en/list/372

Vistas, water features and classically inspired garden buildings are woven into the natural topography of the Skell Valley – View of the lake at Studley Royal by Balthasar Nebot, c.1750

The Studley Royal Park including the Ruins of Fountains Abbey World Heritage Site exemplifies many of the issues discussed in earlier papers and shows how the National Trust has tried to resolve them through an integrated approach to management. The original nomination in 1985 was just for the ruins of Fountains Abbey and St Mary’s Church. These were the parts of the property in state ownership or guardianship and managed by English Heritage. The International Council on Monuments and Sites (ICOMOS) evaluation of the dossier recommended that the nomination should be extended to include the 18th century Studley Royal Park, owned and managed by the National Trust. This was done and the site was inscribed in 1986 under World Heritage criteria (i) and (iv). This involved a marked change in outstanding universal value (OUV) and placed the monumental remains firmly in their wider context,

The abbey cellarium provides an important bat roost © NT Images/Andrew Butler

as part of a designed landscape, raising a new range of management issues[18].

Designed landscapes are perfect examples of where culture and human activity is inextricably linked with nature. Alexander Pope, poet, satirist and enthusiast for changing early 18th century attitudes to the natural world was famous for stating *"In all, let Nature never be forgot….. Consult the genius of the place in all"*. Consulting the genius of the place would highlight which features of the landscape should be revealed and which hidden or removed. The cultural significance of the Studley Royal water garden owes much to this idea of working with nature, and adorning nature with 'art', that was so fashionable in the early 18th century. This has been identified as one of the key attributes of the OUV of the World Heritage Site.

"One of the most striking characteristics of the 18th century designed landscape at Studley Royal is the way in which the natural geology and topography of the site have been explored and exploited for their expressive possibilities. 18th century landscapers were advised to understand and respond to the genius loci, the spirit of the place, when putting together plans for their gardens. This can be seen to great effect at Studley Royal where the contrasts of the estate's physical characteristics provide the foundation for Studley's unique beauty."

[18] Pers. Comms. Christopher Young

The geographical setting of the Studley Royal Park on the fringe of the Pennine Dales, overlooking the Vale of York, as well as the dramatic topography of the estate itself, facilitated the creation of a complex web of paths along the valley bottom and cut into the valley sides, affording varied experiences, highlighted by views, vistas and vantage points. The exposed rock faces were exploited to lend character and drama to the designed landscape. This is seen most clearly in the exposed limestone pillars along Seven Bridges and the rough cliff face below the Octagon Tower. The River Skell was manipulated as a central feature of the designed landscape and was heavily engineered to create the canals, cascades and ponds of the water garden.

It is a site where nature is inextricably linked with culture. If inscribed as a World Heritage Site today it could be argued to be a cultural landscape, defined by the World Heritage Committee as the *"cultural properties [that] represent the combined works of nature and of man"*. The Operational Guidelines 2008 identifies three main categories of cultural landscapes and states:

*"The most easily identifiable is the **clearly defined landscape designed and created intentionally by man**. This embraces garden and parkland landscapes constructed for aesthetic reasons which are often (but not always) associated with religious or other monumental buildings and ensembles."*

Managing a changing landscape

By their very nature, many of the features of the 18th century landscape gardens, including the carefully framed views, planting and garden ornaments, are highly vulnerable to natural and man-made change. Many of the 18th century planting patterns, views and vistas and paths at Studley Royal were disappearing beneath vegetation as early as the end of the 18th century. There is also the growing threat posed by climate change with increased flooding and high levels of sedimentation impacting on the OUV of the site. These changes cause challenges for present day management of the site.

When we think about conservation or restoration of the World Heritage Site we always keep at the centre of our mind that this is a garden, described as 'a masterpiece of human creative genius' in the inscription criteria, and not a totally natural landscape. A garden, although created by man, in this case John Aislabie and his son William, is in essence a mix of natural and cultural elements. The natural elements of the garden include trees and shrubs, grass, rock exposures and water. However, even those elements which seem 'natural' are carefully designed with an eye for detail and effect. Statues, temples and other garden buildings were essential built elements, designed to ornament the 18th century garden.

This combination of nature and culture supports a variety of priority habitats and protected species. The site has many designations attached to it, including several which highlight the significance of its biodiversity. This can lead to potential conflict between approaches to management of the two different kinds of significance. As a general principle on those rare occasions where designations make opposing demands, the cultural significance takes priority. This principle is set out in both the World Heritage Site Management Plan (WHSMP) and Conservation Management Plan (CMP). However, in practice, improving the biodiversity of the site and protecting priority habitats and species almost always brings benefits for both the natural and cultural values of the site.

The section below sets out in more detail some of the conservation challenges in the World Heritage Site where the management of cultural values and maintaining the OUV of the site have had to be carefully balanced with natural values.

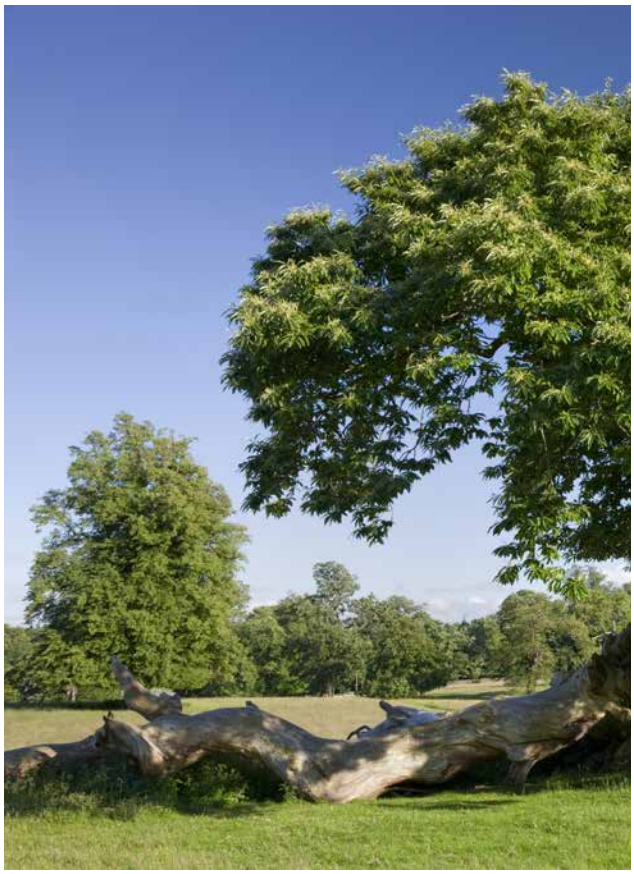
Fountains Abbey ruins

The abbey is managed as an 18th century garden eye-catcher as well as a monastic ruin. Conservation of the abbey is the responsibility of English Heritage (EH) under a Guardianship Agreement. The Trust and EH have agreed a policy on how vegetation is managed on the abbey. Woody vegetation is removed where it is likely to damage the abbey stonework but other plant growth is carefully retained to maintain the romantic aspects of the abbey's presentation within the gardens. The abbey ruins support significant species including wallflowers and a rare species of pink. This management approach enhances both the natural and cultural significance of the abbey ruins.

The abbey cellarium is an important bat roost as well as a masterpiece of medieval architecture. Partly to preserve the bat roosts the consolidation work was phased over several years[19] and small holes left in the undercroft vault to provide roosts for pipistrelle bats.

Veteran trees and dead wood.

The parkland at Studley Royal includes an internationally significant collection of veteran trees and is a UK BAP priority habitat (parkland and wood pasture). Lime, sweet chestnut and oak were carefully planted in the 18th century in groves and avenues designed to frame views to distant places, the most magnificent is the view along the lime avenue to Ripon Cathedral. The deer park is also home to herds of red, fallow and sika deer. So the parkland has both natural and cultural significance. Sensitive management of the trees can prolong their life and their exceptional importance in the design and layout of the parkland and as natural features in their own right. From a nature conservation perspective it is important to retain the veteran trees and associated dead and dying timber which support species of saproxylic invertebrates. In the deer park the dead wood is left *in situ* or adjacent to the tree it came from, unless it is obstructing a designed feature such as an avenue and then it is moved carefully to one side or placed under another tree of the same species. Managing dead wood is more challenging in the formal areas of the garden where it has a greater impact on the 18th century presentation.



A sweet chestnut tree and fallen trunk in the Studley Royal deer park © NT images/Andrew Butler

[19] Pers. Comms. Christopher Young

The aerial photo shows the River Skell as it flows through the Studley Royal water garden © NT images

Water management

The Studley Royal Water Gardens are designed around the river. There is a long history of manipulation of the natural course of the river beginning with the monks in the 12th century who realigned the river to accommodate the abbey and harness its power for the mill. In the 18th century the river was manipulated further by John Aislabie and then his son William. It was heavily engineered to create ornamental ponds, canals, tumbling cascades and lakes, an important part of the OUV of the World Heritage Site. The river also supports protected species including white-clawed crayfish, otters, water voles and great crested newts. The manipulation of a natural river by man created challenges in the 18th century and continues to challenge us today.

"*Fountains Abbey is full of water and has stopped us from working for a time, but we have too much work to do in the gardens, that is the water has tore up part of the gravel walk by the great yew tree… while the water in the lake is half a yard off the top*."
(Letter from Rob Doe to William Aislabie dated February 1768)

Since acquisition of the estate in 1983, the Trust has spent around £2.6m removing silt from the water features and repairing damage caused by flooding. The formal water features are such an important attribute of the OUV of the site that allowing them to fill with silt and the river to revert to a natural course would lead to significant loss of site's cultural significance. The Trust, working in partnership with Nidderdale Area of Outstanding Natural Beauty and landowners in the river catchment, is developing a programme of Natural Flood Management and water quality measures which will not only help manage the flooding and siltation and therefore conserve the cultural significance of the site but also improve water quality and conditions for wildlife.

Restoring and maintaining historic views

Views and vistas are an important attribute of the OUV of the World Heritage Site. Many of the trees in the garden were planted in the early 18th century and are reaching maturity and over-maturity. In many places they obstruct designed views such as that from the prominence above Studley Lake into the water gardens. These views are a significant attribute of the OUV of the World Heritage Site and we have to take challenging decisions about tree management. The views have been researched and a programme of view restoration is set out in our Conservation Management Plan 2010. We carefully discuss any works with our ecologist and look for opportunities to minimise the nature conservation impact of any works and provide biodiversity benefits. Thinning or pruning of trees can allow light to penetrate the canopy and enable ground cover to establish on exposed areas of soil, stabilising the steep wooded banks which frame the formal ponds, temples and lawns on the valley floor.

In 2010 the Trust undertook an ambitious project to remove an island from Studley Lake to restore the 18th century view from the promontory above the lake into the water

garden. The island had appeared in the lake in the late 19th century as part of silt dredging by a previous owner. Over time, the island had become valued by local people, both as a landscape feature and for its wildlife value as a nesting spot for Canada Geese. Being able to communicate the cultural significance of the view and its contribution to the overall vision for conservation of the internationally important garden was important in explaining to locals and visitors the decision taken. As part of the project we ensured the eastern bank of the lake remains closed to visitors, providing a quiet area for wildlife.

A National Trust approach to integrated management

All proposals for restoration are based on thorough research and historical evidence, and a full assessment of the garden's historic, aesthetic, cultural and environmental significance. This is a complex process as the World Heritage Site represents several phases of design and has a range of different values so we involve stakeholders and experts in the process. Nature conservation needs to be understood and assessed, and conflicts resolved before work commences. In many instances improved management of the nature leads to improved appreciation of the cultural significance of the landscape.

The WHSMP and CMP provide a framework for managing the site. The WHSMP has an overarching objective to maintain the OUV of the World Heritage Site. However, the OUV of the site, as described above, includes the combination of the natural and cultural elements of the landscape. Therefore management of the site has to include both natural and cultural heritage. The CMP for the site is four volumes long and took its lead from the WHSMP. An important element of the landscape consultancy brief was that the plan should include the management of both the natural and cultural heritage of the site. The CMP then becomes a useful tool for discussing and integrating the management of the natural and cultural values.

NT conservation delivery mechanisms

In the Trust we work in multi-disciplinary teams with specialists based in regions. At the property we hold quarterly conservation meetings attended by the National Trust regional archaeologist, curator, ecologist, parks and gardens advisor, farming advisor, estates manager, head gardener and conservation manager. As a team we discuss the programme of conservation work for the year and our priorities going forward. This framework ensures that projects are delivered to optimise opportunities to enhance the natural and cultural values of the site.

We also recognise the importance of monitoring and measuring our conservation performance through our Conservation Performance Indicator. The Trust identifies a list of attributes for all its properties which include nature and wildlife, parkland and gardens, buildings and structures, interiors and collections, archaeology and landscape and setting. As a group we agree a level of significance for each attribute and then measure our performance against each one. So for example, the gardens at Studley Royal are identified as internationally important as the site is inscribed as a World Heritage Site while the nature and wildlife features of the site are described as of UK importance reflecting the wide range of priority species and habitats found on the site. We then use a scoring bar to measure how that attribute is performing – both in terms of the knowledge we have about the feature and its current condition. An important part of the meeting is setting actions to improve condition and/or knowledge of the feature. This scoring is repeated each year with a target to improve the conservation performance of all Trust sites across all attributes.

Working beyond our boundaries

The natural elements of the site, particularly the river, mean we also have to work beyond our ownership boundaries and the boundaries of the World Heritage Site to resolve some of our greatest conservation challenges. Engaging with farmers, landowners and other partners is fundamental to integrating natural and cultural heritage and successful management at a landscape-scale.

Conclusion

Although Studley Royal Park including Fountains Abbey is inscribed as a cultural World Heritage Site, both the natural and cultural values of the site are considered in all our management decisions. We recognise this is a challenge and have set out in this paper some of the mechanisms and management frameworks the Trust has in place to help. We do have statements in both our WHSMP and CMP that give priority to cultural significance of the site but in practice we carefully consider all values when we make management decisions about site and the examples above highlight the challenges and hopefully achievements of this collaborative approach.

References

Fountains Abbey and Studley Royal Conservation Management Plan (2010).

Fountains Abbey and Studley Royal World Heritage Site Management Plan 2015-2021.

Goodchild, P.H. (2014). Extract from Lecture No. 4 - *Gardening the landscape and landscaping the garden* 1600-1820.

Hobhouse, P. (2002). *The Story of Gardening*. DK.

Newman, M. (2015), *The Wonder of the North – Fountains Abbey and Studley Royal*, Boydell Press.

Bath: a therapeutic landscape

Tony Crouch, City of Bath World Heritage Site Manager
City of Bath World Heritage Site whc.unesco.org/en/list/428

The skyline of Bath, seen from Prior Park Landscape Garden © National Trust Images/Andrew Butler

The City of Bath is an excellent example of the blurred distinction between cultural and natural heritage. Demonstrated here, over a wide canvas, is (according to the World Heritage inscription for the site) 'a demonstration par excellence of the integration of architecture, urban design and landscape setting'. For this reason, Bath is one of only two places in Europe where an entire city is inscribed. The other is Venice, attracting more visitors than Bath but drawing on that same blend of the cultural and natural.

Bath was inscribed as a World Heritage Site in 1987, under criterion i, ii and iv. The key attributes of outstanding universal value (OUV) can be summarised as follows:

- Roman archaeology
- The hot springs
- Georgian town planning
- Georgian architecture
- The green setting of the city in a hollow in the hills
- Georgian architecture reflecting 18th century social ambitions

The natural influence on the site is immediately apparent from these attributes, although some connections are more obvious than others. The hot springs are clearly a natural phenomenon. The three springs have an average temperature of 42°C and the main spring flows at a rate which would fill a domestic bath tub every 8 seconds. They are the only springs classified as 'hot' in the UK. Although this makes them a rare natural feature, they are inscribed as part of a cultural site in relation to how humankind has used the springs, not the springs themselves. Recorded use of the hot waters for relaxation and healing can be seen from the first century AD and the same natural features remain in the same cultural use 2,000 years later.

The second obvious natural influence is the green setting of the city. Bath sits within a hollow in the hills carved by the River Avon and is surrounded on three sides by the Cotswold Area of Outstanding Natural Beauty. The close proximity of countryside to city is a key characteristic of Bath. The surrounding hills are visible from almost every street within the city centre (except Green Street!), giving

the impression that the urban area is much smaller than it actually is. Fingers of green land extend almost to the urban centre, with the National Trust meadows at Bathwick being the same distance from the Abbey as the Royal Crescent is in the opposite direction.

Less obvious, but equally as strong, is the link between Georgian architecture/town planning and the wider landscape. The rapid expansion of Bath during the eighteenth century happened at the time of the English enlightenment, where gentlefolk would further their education by undertaking grand tours into Europe (generally Italy), gaining an appreciation of vistas, landscape, architecture and classical values. These ideas were then transposed onto the creation of the new town of Bath as a utopian settlement. Dramatic building forms were created by elegant tall terraces following the contours of the hillsides, fine country houses (such as Prior Park) were purposefully sited to maximise views to and from them, and the entire city was built of the locally quarried stone: the Jurassic Cotswold Limestone of the surrounding hills. As an example the Royal Crescent is deliberately elevated to take advantage of open countryside views. Here we see the relationship between the built and natural landscapes enter a new era. A century earlier, in the construction of the Palace of Versailles, the fashion was to tame the landscape in formally laid out gardens, but by the time the Royal Crescent is built (circa 1770), landscape and buildings meet as equals, each drawing from the others beauty.

One of the greatest compliments paid to Bath is contained within the 'Statement of Outstanding Universal Value' which states that here was 'the deliberate creation of a beautiful city'. The success of the Georgians in achieving this was a keen appreciation of their natural surroundings and the harmonious combination of landscape and architecture. It is somewhat sad that having known for 300 years that these are key ingredients in building a beautiful city, beauty rarely appears on the priorities of contemporary urban planners and seems to be placed far behind practicality and cost.

In terms of the management of Bath, this does show divisions between cultural and natural heritage. This may be because of the way that our conservation agencies and systems are set up. Historic England has had long term involvement in Bath, being members of the World Heritage Site Steering Group since it was established in 2001. Natural England, however, are not members of that group. Similarly, the hot springs are Scheduled Ancient Monuments, but have no geological or natural accreditation. The cultural agencies are in the ascendancy here, the 'naturals' are not.

The landscape around the city is also a poor relation in terms of control. There are over 5,000 listed buildings within the Bath conservation area that are tightly controlled by planning legislation. So, whereas a building owner cannot change a door without seeking permission, a land owner can fill a field full of plastic horse jumps and similar equipment with a far greater visual impact without the need to seek

The Palladian Bridge at Prior Park © NT Images/James Dobson

formal consent. It may be that the low profile of natural heritage experts within the city has led to a strong emphasis on cultural heritage, and in the interests of the holistic management of the city a greater emphasis needs to be placed on the natural environment.

In considering the influence of the cultural environment on the natural environment (and vice versa), this influence extends beyond how a landscape is viewed to how it is used. Spa towns were always places of healing, rest and recuperation. Indeed, in the days before modern medicine emerged and after the demise of the monasteries, they were one of the only refuges of the sick. The "cure" offered by spas is commonly thought to extend only to drinking or bathing in the waters. We know, however, that it was much more than this. As early as 1702, there are records of physicians such as Dr George Cheyne (1671–1743) who were promoting a "Natural Cure'" This involved a strict vegetarian diet and walking or riding in the hills around Bath. The same was happening (although somewhat later) in European spas. The German doctor Max Oertel (1835-1897) prescribed his cardiac patients strenuous walks in the hills as part of his "Terrain cure". These doctors were recognising that exposure to fresh air, exercise and the beauty of the landscape was good for both physical and mental health.

The beneficial effect of attractive landscapes on health and well-being is recognised in the modern academic study of "therapeutic landscapes". To date, this term has mostly been applied to the grounds of hospitals and asylums, but it is equally applicable to the natural landscape of Bath. Dr Cheyne's cures worked on the ills of his patients, which were commonly inappropriate diet and mild lead poisoning (gained mostly from drinking vessels). Today's growing problems of obesity, heart disease, diabetes, and mental health issues can also be partially addressed by using our natural environment in a more effective way. The paths and rides trodden by Jane Austen amongst others still surround Bath, but the task is to make them more attractive and accessible to more users. Modern citizens have perhaps become disconnected from their landscape and we need to work on reconnecting people.

Holistic management and the breaking down of divides between the approach to cultural and natural heritage is essential. Bath, the beautiful city, is a desirable place to live and the demand for housing and employment has largely been unchecked by the recent recession. Fortunately, the withdrawal of the Ministry of Defence (naval support offices) from the city has provided enough 'brownfield' land for 3,000 homes, which are currently the subject of planning applications. If current market conditions (2014), however, are sustained, this windfall will only buy a respite of maybe five years before the search for more housing sites begins again. It must be ensured that the green field setting of the city is not viewed merely as 'undeveloped land', but fully recognised that it is already fully in legitimate use in providing the backdrop and balance to the urban form. The green landscape is as essential to Bath as the canals are to Venice. We must be prepared to grant the natural equal recognition and value to that of the cultural.

Natural hot springs supply the Roman Baths

The conclusions here are then somewhat obvious. Bath provides clear evidence that in constructing places which are both beautiful and healthy (and therefore largely sustainable in modern parlance), both natural and cultural heritage must be considered in equal measure. Of course separate disciplines will continue to exist, but in terms of effective management it is essential that a holistic management approach must prevail.

“The beauties of the neighbourhood…” Saltaire in the landscape

Helen Thornton, World Heritage Site Officer and **Danny Jackson**, Countryside and Rights of Way Manager, Bradford City Council
Saltaire World Heritage Site whc.unesco.org/en/list/1028

A picturesque interpretation of fields and country yokels above Saltaire in the 1850s © City of Bradford Metropolitan Council

Nature influencing design

On 20th September 1853 Titus Salt opened his Mill at Saltaire and gave a rare public speech during which he stated that “I hope to draw around me a population that will enjoy the beauties of the neighbourhood – a population of well fed, contented, happy operatives”

What motivated Titus Salt to choose this location for a new mill complex and workers village? Moving out of the centre of Bradford and away from the terrible living conditions was important – there were some of the highest mortality rates in the country, back to back houses, un-sanitary conditions, outbreaks of cholera. Salt was a radical liberal and paternalist - and as Bradford’s second mayor in 1842 he was greatly affected by these conditions. As a business man, bringing all the processes of his mills into one complex made economic sense. Water supply from the River Aire was plentiful, there was plenty of land and the prevailing westerly winds blew smoke away from the planned village. Combined with the location of the railway (completed 1847) and the Leeds Liverpool Canal (completed 1816) this all made for a great site for a new industrial enterprise. Salt had a vision for a township and a mill built on an unprecedented scale with outstanding social provisions.

We also know that Salt was motivated by the beauty of the natural location. The location Salt chose is 3 miles north-west of Bradford and was essentially a green field site. It already had a successful fulling and corn mill on the River

Aire and from the 1820s there were two turnpike roads nearby with a scattering of farmsteads. The topography of the site had long views of pasture and moorland hills with Baildon Moor to the north and Northcliffe Woods to the south.

Natural setting – a natural buffer

The natural setting of the site influenced the original design of Saltaire. The street plan was carefully laid out to allow air flow through the houses – considered essential for health and hygiene, the collection of rubbish, sewerage management and sanitation etc. The principal routes were wider than they needed to be to allow good views of the surrounding moorland countryside up and down for residents and travellers on the turnpikes and for promenading to the People's Park at the bottom of the hill. This design also allows good understanding of how all elements of the village relate to each other. The design changed with the topography to continue to allow panoramic views and to present attractive frontages to the turnpike roads.

Shipley Glen on the Moors beyond became a Victorian visitor attraction in the 1880s – with a pleasure ground with fairground rides, tea rooms, Japanese gardens and a funicular tramway which still exists today.

The natural setting of the World Heritage Site is highly designated, mirroring the cultural importance of Saltaire. To the north lies Rombalds Moor, which includes the famous Ilkley Moor, and is part of the South Pennine Moors Site of Special Scientific Interest (SSSI). This is the highest national nature conservation designation, reflecting the importance of these moors' habitats which support important species - particularly moorland birds. The moors are also designated at European level, under the EU Birds and Habitats Directives, as a Special Protection Area (SPA) and a Special Area of Conservation (SAC) and so have international significance.

Salt's Mill, Saltaire © Chris Mahon

Closer to the World Heritage Site, the mix of wooded valley, pasture and open moorland plus the river and canal corridor, give the area a unique range of habitat and recreational, landscape and aesthetic interest. It also gives a clue as to why the site was originally chosen. A quote from a statement relating to Fountains Abbey can equally be applied to Saltaire: "*the natural shelter provided by the deep post glacial river valley, presence of water and the underlying and surrounding geology and geomorphology have had a critical influence on the development of this site, the materials used in its construction and the design of its landscape*" .

In addition, the World Heritage Site is very effectively linked with its surroundings via a well-developed network of public rights of way, access land and canal towpath - providing valuable access and recreation links between the World Heritage Site and the wider surrounding countryside.

Today, the transport corridors through the Aire Valley provide important habitats and wildlife corridors. They also provide a corridor for invasive species. The pasture and moorland to the south especially has become urban sprawl over the past 170 years. The moorland to the north is a critical backdrop protected within the World Heritage Site's Designated Views. There are 29 Designated Views within the site, looking into the site and looking out of the site, which are protected in the World Heritage Site Management Plan. These views are regularly assessed and documented using English Heritage guidance, impact upon them from inappropriate development needs continual assessment and is managed through the planning process.

The buffer zone was determined on the basis of including all the surrounding landscape visible from within the World Heritage Site and those areas providing uninterrupted views of the village that allow its planned layout to be appreciated. The buffer zone is a 'material consideration' in the planning process for developments which might damage the outstanding universal value of the site, its view points, significant transport corridors and gateway roads approaching the site.

Collaboration across cultural – natural boundaries

The cultural and natural are inextricably woven together and this deserves clearer recognition and better integration in the way we manage Saltaire World Heritage Site.

It starts at the strategic level. We need to use the inter-relationships between the natural and cultural to formulate appropriate strategies for how we understand, present, conserve and manage the site. The management structures overseeing the implementation of the World Heritage Site

Rural views around parts of Saltaire World Heritage Site are little changed © City of Bradford Metropolitan Council

Management Plan need to reflect multi-agency and multi-disciplinary partnerships. Objectives for conserving and developing the natural elements need to be more fully understood by those managing the built heritage and vice versa. But more than that, those objectives need to be truly shared. In a large site such as this, with its 1000 ha of buffer zone, numerous Council departments need to work together alongside a range of external partners such as Canal and River Trust, Baildon Town Council, Environment Agency and community groups involved in green spaces and the countryside.

Marketing of the site and creating an attractive offer for tourists needs joining up. Visitors come for a variety of reasons. The impact of visitors on sensitive and important features in the natural landscape needs monitoring, as does the impact of tourism in the village itself and on the life of residents as Saltaire is a living community. This is a shared challenge.

For example, operationally we need to ensure signage, outdoor events, highway schemes, countryside management, and projects using volunteers are planned and 'joined up' in such a way as to not miss out on economies of scale, external funding and transferable skills. We need to have a holistic approach to managing risk and impact. Understanding the whole context makes for a far more effective environment and a better visitor experience.

Conclusion

The natural setting has a historical dimension which, when properly understood, becomes part of the cultural value of the site. The cultural values have been shaped by the natural setting. These issues have been subject to extensive public consultation and they have become enshrined as a new key objective in the site's recently revised and newly adopted Management Plan (2014):
"*Protect and enhance the World Heritage Site Buffer Zone and work towards better integration of the Cultural importance of Saltaire with the natural values of the site, its immediate setting and the Buffer Zone*"

A number of actions have been agreed by all stakeholders to meet this objective:

- the need to review all publicity materials to maximise opportunities for joint promotion of natural and cultural values around the World Heritage Site
- the development of welcoming and high quality interpretation and environments at key gateways and 'viewing points' within the Buffer Zone into the site, for example at the top of Shipley Glen to interpret the setting of the World Heritage Site.
- working in partnership with all those managing the natural landscape, parkland and other natural elements in the site's immediate setting and Buffer Zone to ensure those elements are managed, understood and interpreted in conjunction with the World Heritage Site.

The conversation started at Fountains Abbey in 2014 between World Heritage Sites will continue to inform the way that Saltaire is managed for the future.

Stonehenge and Avebury World Heritage Site: managing a cultural landscape in all but inscription

Sarah Simmonds, Stonehenge and Avebury World Heritage Site Partnership Manager
Stonehenge, Avebury and associated World Heritage Sites whc.unesco.org/en/list/373

The concept of natural/cultural dualism is problematic; it is not a universally accepted distinction. Even in Western thought where it has been prevalent, in different periods and across different disciplines the two concepts have been defined in varying ways. The mutability of both terms has been highlighted by many academics. The cultural historian Raymond Williams (1980) in his essay *Ideas of Nature* recognised that the term "contains, although often unnoticed, an extraordinary amount of human history." His essay highlighted the interdependence of the two abstract concepts; nature and culture. In the Stonehenge and Avebury World Heritage Site this abstract relationship is made strikingly tangible in a landscape whose cultural value is so intimately and demonstrably entwined with the natural environment.

This short paper discusses how although Stonehenge and Avebury was inscribed as a cultural World Heritage Site in 1986, it would today be considered a cultural landscape due to the interrelationship of the historic and natural environment at the heart of its significance. It highlights how our evolving understanding of the links between the cultural and the natural was demonstrated in the drafting of the attributes of outstanding universal value (OUV). Finally it looks at how the management of the site responds to the challenges and opportunities that the intimate relationship of the historic and natural environment presents.

Stonehenge and Avebury: a cultural World Heritage Site

Cultural criteria

Stonehenge, Avebury and Associated Sites was inscribed as a World Heritage Site in 1986 under criteria which emphasise the cultural aspects of the site. It is recognised as internationally important for its complexes of outstanding prehistoric monuments. Criteria (i) focuses on the outstanding technological achievement represented by the monuments. Stonehenge is identified as the most architecturally sophisticated prehistoric stone circle in the world and the huge undertaking in engineering represented by the immense stone circle at Avebury is highlighted. Criteria (ii) focuses on the developments in monument construction from the early Neolithic to the Bronze Age and the cultural influence of the Site on architects, artists, historians and archaeologists. Finally, criteria (iii) refers to the insight that the monuments offer into the ceremonial and funerary practices in prehistoric Britain. Although predominantly cultural in focus the nomination documents do include an important acknowledgement of the natural/cultural relationship that has come to underpin the way the World Heritage Site is managed today. The monuments, their settings, and associated sites are described as forming "landscapes without parallel".

Cultural landscapes

The concept of cultural landscape was first introduced by the American geographer Carl Sauer (1925). He described a cultural landscape as one "fashioned out of the natural landscape by a culture group. Culture is the agent, the natural area is the medium, the cultural landscape is the result". In 1992, the year of the Rio Earth summit and a time of growing international focus on the impact of humans on their environment, the World Heritage Committee introduced the new category of cultural landscape (see Appendix 2).

If Stonehenge and Avebury had been nominated after 1992 there is little doubt that it would have been inscribed as a cultural landscape. The site conforms most closely to the relict or fossil sub-category of cultural landscapes. This is described in the Operational Guidelines as one which has organically evolved from an initial social, economic or religious imperative developing its present form by association with, and in response to, its natural environment. The relict aspect relates to the fact that the process came to an end at some time in the past although its significant distinguishing features are still visible.

Valley of the Stones, sarsens lying where they were formed in Fyfield Down NNR, Avebury © Steve Mashall

Attributes of Outstanding Universal Value: where the cultural and natural merge

Attributes of OUV have been developed by all UK World Heritage Sites to provide less abstract explanations and more tangible examples of OUV to help focus the management of the site on the elements that require protection and presentation. The process of developing these attributes has been an important step in moving beyond the cultural and monumental focus towards an awareness and understanding of how the natural environment and the wider landscape relate to the site's significance. The four attributes of OUV described below directly demonstrate the cultural/natural interchange fundamental to this significance.

Physical remains of the monuments

Local Stones: The first of these attributes relates to the physical remains of the Neolithic and Bronze Age monuments and associated sites. Although apparently a culturally focused attribute relating to technological skills and funerary and ceremonial practices, it is also inextricably linked to the natural environment. The monument builders did not venture far to find their materials. With the exception of the bluestones at Stonehenge, which were dolerites brought from the Preseli Hills in Wales, the majority of the stones were local sarsens. These were sourced from the surrounding area having been formed locally from the silicification of Palaeogene sands during the Neogene (c. 10 million years ago). In the Avebury part of the World Heritage Site these can still be seen lying were they were formed in the Valley of the Stones at the Fyfield Down National Nature Reserve.

Although the sarsens at Stonehenge are dressed, those in the Stone Circle at Avebury are in their natural state. For many centuries the stones went unremarked as homes and farms grew up within and around the Circle. Many of the stones were buried or broken up to perhaps make farming easier or simply as a natural resource for building. This continued until they became the focus of antiquarian interest and were once again taken from the natural background into the cultural foreground where they remain today.

Chalk and soil: The many earthwork monuments within the World Heritage Site including henge monuments, causewayed enclosures and over 600 prehistoric burial mounds were either dug into the ground or have been created from built up chalk or soil. Silbury Hill contains around half a million tonnes of chalk dug from around its base firmly rooting the monument in its geological context. During the 2007 Silbury conservation project archaeologists identified some turf and sarsens brought from further afield in the landscape. This may indicate an intention on the part of the builders to create a microcosm of the wider landscape; a re-creation of the natural world in the form of a monument (Leary *et al*., 2013).

Buried archaeology: Below ground archaeological features which have been ploughed out appear to the normal visitor to have returned completely to the soil and nature leaving no trace. Although they remain a key part of the cultural landscape evidence remains only to the expert or experienced eye in crop marks, geophysical readings or LIDAR survey results.

Monuments in the landscape

The second of these attributes, the siting of Neolithic and Bronze Age sites and monuments in relation to the landscape, makes the link between the cultural and the natural environment explicit. The henge at Durrington Walls and at Stonehenge itself were linked via their Avenues to the River Avon and thereby possibly to each other. At Avebury, Silbury Hill appears to have been intentionally sited at the head of the River Kennet. Recent research has identified warm springs in the setting of Silbury which it is thought may have made the area appear more verdant earlier in the year so making it a possibly auspicious place to construct

Silbury Hill – winter flooding around the base of the hill © Steve Marshall

the monument. Many of the barrow cemeteries in the World Heritage Site were clearly built on prominent ridge-lines for visual impact. Though its original function is uncertain, the Stonehenge Cursus seems to have been laid out to link outward views over the Till and Avon valleys.

Monuments and the skies

The third attribute highlights the design of the Neolithic and Bronze Age monuments in relation to the skies and astronomy. This aspect again ties the cultural to the natural positioning of the monuments in their celestial context. A number of sites within the World Heritage Site are aligned on the midsummer sunrise and midwinter sunset axes, for example, Stonehenge, Woodhenge and parts of the Stonehenge Avenue. In addition, possible alignments with the moon have been identified. The design of the monuments may, as perhaps at Silbury, attempt to mirror the natural world, or in some way anchor or control its forces. There are theories that the sun setting between the stones of the great trilithon at Stonehenge during Winter Solstice is due to a design that aimed to capture the power of the sun within the monument over the dark winter months and ensure its return in the spring. Modern day pagans ascribe spiritual values to these links between the monuments and the skies.

Landscape without parallel

The fourth attribute effectively describes Stonehenge and Avebury as a cultural landscape highlighting the interchange of nature and culture: *"the design, position and interrelationship of the monuments are evidence of a highly organised prehistoric society able to impose its concepts on the environment."*

Managing the Cultural Landscapes: Challenges and Opportunities

As outlined in the attributes of OUV, the historic and natural environment are inextricably linked at Stonehenge and Avebury. Managing the cultural landscape presents a number of challenges, however, it also provides some valuable opportunities for fulfilling our obligations to protect, present and pass on the World Heritage Site to future generations.

The relict cultural landscape is only one layer within the present day landscape. The European Landscape Convention (Council of Europe, 2000) recognises that change and evolution through time will continue to happen in a landscape as a result of its being acted upon by both natural forces and people. A major challenge is to ensure that attributes of OUV are protected and remain legible in the changing landscape. UNESCO's handbook (2009) on managing World Heritage Cultural Landscapes recognises that an interdisciplinary approach is needed. Managing Stonehenge and Avebury relies on close and effective partnership working between organisations and individuals responsible for the historic and the natural environment as well as a range of other disciplines and interests.

Key challenges for both the protection and the presentation of the attributes of OUV include factors which have a harmful impact on the physical remains of the monuments and sites and those that would diminish or obscure their relationship to the landscape and the skies. This includes anything that would reduce the legibility of the relict landscape as a whole. Some of the major challenges and the agreed management response are set out in Table 1 of this paper. The World Heritage Site Management Plan 2015 provides further discussion of these and other challenges.

Partnership working and a landscape scale approach

Table 1 illustrates the decision to take a landscape scale approach which necessitates close liaison between partner organisations as well as individual farmers and landowners. The development of the World Heritage Site Management Plan published in 2015 was an opportunity to review the focus of management in the light of the attributes of OUV and explore the idea of strategic interventions at the wider landscape level and gain their commitment to this approach.

Data sharing

The design and implementation of these planned landscape scale strategies requires exemplary partnership working, effective communication and free data sharing. Investment will be necessary in some cases to compile relevant data sets where gaps exist and also to invest in carefully targeted monitoring and reporting. A single combined World Heritage Site GIS data set is planned within the Historic Environment Record which will contain both cultural and natural information. This comprehensive data set should provide evidence to support joint projects that benefit both the natural and the historic environment.

Cultural/natural opportunities

The recent Management Plan (Simmonds and Thomas, 2015) emphasises the need to: 'Explore and develop synergies between the historic and natural environment to benefit the World Heritage Site and the maintenance of its OUV'. These synergies offer a number of powerful opportunities to deliver substantial benefits in addition to the direct protection offered by schemes such as Countryside Stewardship. These include increased access to funding as well as enhanced opportunities for engagement, understanding and enjoyment.

Funding

The Management Plan underlines the need to expand existing, and develop new, links with conservation bodies, programmes and initiatives to explore integrated management opportunities and joint funding projects. Natural England's flagship environmental stewardship schemes do so much in partnership with farmers to protect the World Heritage Site from the harmful impacts of ploughing whilst delivering biodiversity and landscape scale gains. Over the last 15 years Natural England has been probably the most significant investor in the protection of Stonehenge and Avebury through these schemes. Potential synergies exist with other natural environment targeted European Directives including the Water Framework and Habitat Directives and River Basin Management Plan.

Table 1: Challenges and Management Response

Challenge	Nature of impact on attributes of OUV	Management Response
Farming/cultivation	Damage to the physical remains of monuments. The major cause of damage to archaeological remains in the World Heritage Site Legibility of links between monuments and landscape features diminished	Remove the most sensitive archaeology from cultivation in partnership with farmers and Natural England through their environmental stewardship scheme: Countryside Stewardship. Maintain status of the site as a target area for Natural England. Arable Reversion Opportunities Mapping project with Historic England, Wiltshire Council (County Archaeologist), Natural England and Avebury and Stonehenge Archaeological and Historical Research Group to target areas for protection and presentation of OUV.
Inappropriate development	Damage physical remains although impacts on the landscape setting are more likely Light pollution harms the setting of monuments, their relationship to the landscape, the skies and astronomy	Produce Supplementary Planning Document or planning guidance to enable developers and planners to understand the spatial implication of OUV and necessary studies to establish the impact. Identification of key views and astronomical alignments. Guidance on light pollution. Partners include Wiltshire Council, the North Wessex Downs AONB, Historic England and the National Trust
Burrowing animals	Damage to the physical fabric of the monuments	Produce a Burrowing Animal Strategy identifying ways to minimise damage across the World Heritage Site landscape rather than individual monuments. Exclusion could simply move the problem to adjacent monuments. Partners include Natural England, Historic England, National Trust, Wiltshire Council County Archaeologist and local landowners and farmers
Trees and scrub	Damage to physical remains of monuments. Legibility of links between monuments and landscape features diminished	A World Heritage Site Woodland Strategy produced indicates proposed management solutions to prevent damage and make legible the links to the landscape features and greater legibility of landscape by removal or appropriate management. Partners included the National Trust, Historic England, Natural England, and farmers

Sunset at Winter Solstice, Stonehenge © Historic England

Further mutual gains can be delivered through working together on approaches to management of national natural designations such as Site of Special Scientific Interest (SSSI) and National Nature Reserve (NNR) where they fall within or adjacent to the World Heritage Site. The European Union has recently launched a programme with over €100 million for research and innovation in the field of cultural heritage under Horizon 2020 (https://ec.europa.eu/programmes/horizon2020/). This programme specifically mentions the area of interface between the cultural and natural environment. Our combined data set can help provide evidence for how investment will bring both natural and historic environment gains.

Following the vote to leave the European Union in June 2016 many of these European funding streams will be in jeopardy. The Heritage Alliance in its Brexit and Heritage Briefing underlines the importance of Common Agricultural Policy-related funding over the past decade: "the European Agricultural Fund for Rural Development, including LEADER, has provided c£280m for agri-environment schemes and rural projects with a heritage component in England" (Heritage Alliance, 2017). This includes around £2m in the World Heritage Site over the lifetime of the existing schemes which cover around 40% of the site and schemes help to protect and/or enhance the setting of c 800 historic features (Simmonds and Thomas, 2015). It will be extremely important to retain or enhance these benefits by ensuring that funding is maintained or increased following Brexit. Raising awareness of the synergy of the natural and historic environment and the need to design new schemes that benefit them both will be an important task for those working in both sectors.

Engagement, understanding and enjoyment

For many people the prehistoric landscape can be difficult to engage with. They may find it hard to connect to a distant past with no written record and equally difficult to distinguish its remains in a rural landscape they are used to seeing as purely natural. Introducing people to the historic environment via its natural features can be a very effective engagement strategy. A large number of people are interested in the natural environment perhaps motivated by an interest in wildlife, walking or scenic views. Introducing the historic features to those already interested in these areas can be a way of increasing understanding and appreciation of the World Heritage Site and its OUV which should in turn promote its protection.

Farmers: natural and historic environment gains

The Marlborough Downs Nature Improvement Area (MDNIA) supported by Natural England was a farmer-led approach

to enhancing landscape scale nature conservation in an area which includes the Avebury part of the World Heritage Site. This has enthused a number of local farmers interested in the natural environment to undertake valuable voluntary improvements on their land. Open Farm Sundays, organised by the MDNIA, have included organisations representing the historic as well as the natural environment. Information displayed such as LIDAR plots of the landscape have increased understanding and visibility of the historic environment. Activities such as object handling and flint knapping have helped to make the past less distant. An emphasis has been placed on the how the aims of the World Heritage Site (protecting landscape character, public enjoyment, access, community involvement, outreach and education) overlap with those of farmers, local community and the wider public. This has helped raise awareness of how projects could be expanded to deliver benefits across both the natural and historic environment. The work of the MDNIA continues under the name Space for Nature with support from Natural England.

Butterflies and barrows

"Wildlife Around Stonehenge", a leaflet recently published by the RSPB in partnership with the National Trust, has encouraged visitors who might not normally be tempted out into the World Heritage Site to explore the landscape and the wildlife around Stonehenge. Alongside this hundreds of wildflowers have been planted on barrows as part of the "Save our Magnificent Meadows" project. The warm southern flanks of the barrows have become new homes for butterflies. The project has shown the value of monuments for their relict ancient grassland and as a resource to help increase biodiversity. It has also raised the profile of the historic environments.

Sarsens and field systems

The Management Plan contains an action to explore opportunities for interpreting linkages between historic and natural heritage. At Fyfield Down National Nature Reserve (NNR) in the Avebury part of the World Heritage Site, Natural England is developing a downloadable audio trail. This will explore the background to its designation as a NNR for its geological features, the sarsens, as well as its Bronze Age field systems which form part of the OUV of the site.

Conclusion

Stonehenge and Avebury World Heritage Site provides a very tangible example of the fundamental links between the cultural and the natural. The indivisibility of the natural and historic environment in this cultural landscape lies at the heart of the site's OUV and therefore of its management. Recognition of this has encouraged a more integrated, landscape scale approach among the site's partners. The key to success in this approach and to meeting the wider challenges of managing a cultural landscape lies in strong partnership working within the framework provided by the Management Plan. A commitment to investing in effective coordination, data collection and a platform allowing all partners access to this data are important elements. This will facilitate the identification, design and development of joint projects which can attract funding from both natural and historic environment sources. In a period of continually shrinking resources and uncertainty over future funding for environmental stewardship schemes following Brexit managing the complexity of the cultural and natural interchange at the heart of Stonehenge and Avebury's OUV does of course create challenges. At the same time, however, it provides the opportunity for attracting funding from a wide range of sources and for gaining support from a wide cross section of the community. The complexity of the World Heritage Site's cultural landscape may turn out to be its best protection.

References

Council of Europe (2000). European Landscape Convention http://www.coe.int/en/web/landscape.

Heritage Alliance (2017). The Heritage Alliance Brexit and Heritage Briefing. [ONLINE] Available at: http://www.theheritagealliance.org.uk/tha-website/wp-content/uploads/2017/03/Brexit-and-Heritage-Briefing-1.pdf. [Accessed 1 June 2017].

Leary, J., Field, D. and Campbell, G. (2013). Silbury Hill. Europe's largest prehistoric mound. Swindon: English Heritage publishing.

Sauer, C. O. (1925). The Morphology of Landscape University of California Publications in Geography 2.

Simmonds, S. and Thomas, B. (2015). Stonehenge and Avebury World Heritage Site Management Plan 2015.

UNESCO (2009). World Heritage Cultural Landscapes: A Handbook for Conservation and Management, World Heritage Papers 26, Paris.

Williams, R. (1980). Problems in Materialism and Culture: Selected Essays. London: Verso.

Hadrian's Wall and Hadrian's Wall Country – a heritage landscape

Nigel Mills, former Director of World Heritage and Access, Hadrian's Wall Trust
Frontiers of the Roman Empire whc.unesco.org/en/list/430

Roman latrines at Housesteads Fort, Hadrian's Wall, Northumberland. This is one of the Roman Empire's best maintained outposts in Northern Europe © NT Images/John Millar

For the visitor to Hadrian's Wall, the experience is as much about the landscape as it is about the physical monument. Indeed, it can be argued that for many the experience of the monument is disappointing. Removed from its landscape context it is simply the remains of a wall – a pile of stones, as illustrated by some of the findings of the visitor research undertaken for the Hadrian's Wall Interpretation Framework (Adkins and Holmes, 2011; Adkins *et al*., 2013). It is the drama and beauty of the landscape setting and the feeling created of being on the edge of the civilised world, especially along the central section of Hadrian's Wall around Housesteads where the visitor looks northwards across an apparently wild moorland vista, that brings the monument to life as Rome's northern frontier. The landscape serves as a giant and eloquent interpretation panel, requiring no words to impress upon the visitor a core meaning of the monument.

This recognition of the importance of the landscape to the experience of visitors to Hadrian's Wall is reflected in the adoption first by the Hadrian's Wall Tourism Partnership in 2002, and subsequently by Hadrian's Wall Heritage Ltd and the Hadrian's Wall Trust, of *Hadrian's Wall Country* as the World Heritage Site brand.

It is therefore perhaps surprising to find that this synergy between landscape and monument is not better reflected in management planning and in the delivery of interpretation for the Hadrian's Wall World Heritage Site.

The Hadrian's Wall Management Plan

The Hadrian's Wall World Heritage Site Management Plan recognises the existence of the natural landscape and its significance. Part 4 of the 2008 – 14 Management Plan focuses on the Values and Significance of the site and includes a short section on Natural Values at the end (Hadrian's Wall Management Plan 2008 – 2014, pp 26 – 32).

However, despite reference to natural values within the plan, the impression given is of a total separation between the values of the monument as a World Heritage Site and the values of the natural landscape through which the monument runs. Any location affected by both sets of values will have separate management plans for each. Whilst recognising the existence of the other, the two are set up in opposition so resolution of competing values at any location becomes a form of conflict management. An alternative approach might be to develop integrated management plans for areas with multiple designations so that both management and presentation can be more effectively brought together and potential areas of conflict resolved in a strategic manner rather than case by case on the ground.

This integrated approach has been an aspiration for some time but progress is very slow. The 2008 – 2014 Plan includes the following commentary (Hadrian's Wall Management Plan 2008 – 2014, pp 41-2)

"*The Site and its Buffer Zone contain a rich variety of values beyond those for which the Site was inscribed….. Many overlap and can impact on each other. Previous Management Plans proposed developing an overall strategy to integrate both proactive and reactive conservation of all the assets in the Site and its Buffer Zone. Some first steps towards developing this were taken in the period of the (previous) Management Plan …… and the process needs to be continued*. "

The current condition or status of the values of the World Heritage Site needs to be evaluated, together with the resources that partner organisations can bring to conserving the outstanding universal value (OUV) of the site. An integrated audit of the values of the World Heritage Site would then form a reference point against which the Management Plan's aims, values and actions could be reviewed. This values-based approach to conserving the site and its Buffer Zone could help identify ways to mitigate the effects of change through an agreed framework that addresses all values. It could also identify mechanisms to resolve any conflicts, ensuring the future integrated conservation management of the site.

Policy 1c states that *"An overall conservation framework, which includes cultural and natural heritage, should be developed for the differing values in the World Heritage Site and Buffer Zone"* and identifies the following actions:

1. Audit the values of the site and their current condition. Consider the resources the various organisations can bring to the conservation management of the site and buffer zone
2. Develop an agreed conservation management framework to prioritise agreed values and identify conflicts, using guidance such as English Heritage's *Conservation Principles* and the Getty Conservation Institute's '*Heritage Values in Site Management – Four Case Studies'*.

The need for an integrated approach is emphasised again under issue 8: "*In general, actions to conserve the historic and natural environments can be of benefit to both,* ***particularly when both are considered at an early stage*** *(author's emphasis). It is important, however, to recognise that in some instances there may be difficulties in reconciling their needs. Each SSSI has different issues and sensitivities, and there are variations in the nature and preservation of the archaeology. As far as possible, the conservation of natural habitats should be integrated with that of the historic environment, a principle enshrined in the national Memorandum of Understanding between English Heritage and Natural England*"

"*The development of plans for specific areas would be enhanced if complemented by an overall landscape strategy for the World Heritage Site, reflecting the landscape contribution to its OUV"* (Hadrian's Wall Management Plan 2008 – 2014, p 58)

Stewardship is one of the areas in which progress has been made and Natural England reported at the end of the 2008 – 2014 Plan period that most farms along the Hadrian's Wall corridor were in the Higher Level Stewardship Scheme, bringing improvements to the monument at critical sites including Hotbank Farm, Lanerton Farm and Cawfields. Significant work had been done to improve both the fabric of the monument and the surrounding landscape to the benefit of the monument itself, its landscape setting, the farming community and visitors. Nonetheless, the overall approach to stewardship missed the opportunity to integrate cultural and natural values in initial assessments as advocated in the Management Plan. The future priorities of stewardship are uncertain due to changes in EU agricultural policy and need to be kept under review including the opportunity for better integration of cultural and natural values.

Outstanding Universal Value

Differences in understanding and use of the concept of OUV in the context of managing World Heritage can also mitigate against effective integration of cultural and natural values. A Statement of OUV is essentially a well-researched and evidenced value judgement as to the value of a cultural asset at a global scale. It is not the monument itself that is significant, but what the monument is considered to bear testimony to. For Hadrian's Wall this is reflected in the UNESCO definitions of the criteria under which Hadrian's Wall (and other parts of the Frontiers of the Roman Empire World Heritage Site) is nominated as a World Heritage Site:

Criterion (ii): exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design;
Criterion (iii): bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared;
Criterion (iv): be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history;

Hadrian's Wall became part of the transnational Frontiers of the Roman Empire World Heritage Site in 2005, see http://whc.unesco.org/en/list/430 for OUV and associated values.

It is clear from this OUV that the significance of the Frontiers of the Roman Empire, and therefore of Hadrian's Wall, is far more than physical structure of the wall and its associated features. For example, under Criterion vi the Roman Frontiers "…*demonstrate the variety and sophistication of the Roman's responses to specific topography and climate*…". The Authenticity statement further emphasises the importance of "*The form and design of Hadrian's Wall, in particular its linear character, and its architectural and military elements are still easy to understand and its location and setting in the landscape can be clearly appreciated*".

However, in 2014 despite the importance of contextual value in the OUV, there is a consistent tendency in the management and presentation of the World Heritage Site to focus exclusively on the physical remains. To some extent this is understandable in the context of the need to identify clearly and unequivocally for local government Planning purposes the physical evidence that needs to be protected. Within the 2008-2014 Management Plan this is reflected in the use of OUV in a restrictive sense, to define the limits as to what should be included or referenced in the Plan. So for instance under Policy 8d: "A strategy should be developed to manage and protect the rural landscape, *in so much as it impacts on the OUV of the World Heritage Site."*

However, the Management Plan should not be purely concerned with protection and the OUV is not restricted to the physical evidence. The wording of Policy 8d appears to conflict with the aspiration noted above under Policy 1c and Issue 8 for an overall conservation framework including cultural and natural heritage and to restrict the scope for an integrated approach.

Current thinking proposes the development of attribute statements for the component parts of the FRE World Heritage Site, sitting beneath the overarching OUV. This approach has been piloted in the 2009 Management Plan for Stonehenge (English Heritage, 2009) which specifically includes contextual as well as physical attributes. It will be interesting to see whether the attributes adopted for the 2015 – 2021 Hadrian's Wall Management Plan encompass contextual values as well as the physical remains[20].

[20] See http://hadrianswallcountry.co.uk/hadrians-wall-management-plan

The Hadrian's Wall Interpretation Framework

A contextual approach was deliberately adopted in the development of the Hadrian's Wall Interpretation Framework (Adkins and Mills 2011; Adkins and Mills, 2013; Hulse *et al.,* 2011). This approach recognises on the one hand that from the visitor perspective the monument and the landscape are conjoined, and on the other hand that presentation of the monument needs to transcend the physical remains to include their cultural and natural context.

The Framework is an advocacy document that proposes a thematic approach to interpretation using principles of good practice as advocated by the Association for Heritage Interpretation[21]. The approach is visitor rather than monument or object focused, seeing Hadrian's Wall as an object that illustrates the narrative of the Roman Frontier rather simply as a physical monument, and placing the monument in its cultural and landscape context.

The Framework was constructed around two themes. The primary interpretation theme, *the north-west frontier of the Roman Empire*, reflects the core values of the World Heritage Site. The secondary interpretation theme, *the natural and cultural landscape of Hadrian's Wall*, reflects the wider natural and cultural context within which the World Heritage Site exists.

Those aspects of landscape which directly relate to Roman times were included under the primary theme including the effect of landscape on the location, alignment and construction of Hadrian's Wall and the natural landscape in Roman times. Other aspects including the legacy of Hadrian's Wall in the landscape, the natural and working landscape in which the Wall is set today, and the cultural landscape over time were included under the secondary theme.

The Framework was developed through an extensive process of visitor research and consultation (Adkins and Holmes 2011, Adkins *et al* 2013). In essence it provides a menu of themes and ideas through which to explore the narrative of the Roman Frontier and its cultural and natural context. It provides a structure through which interpretation can move beyond the simple presentation of 'things' towards ideas and themes that visitors can connect with.

Reception and application of the Framework has varied. The most effective applications of the principles advocated in the Framework are to be found in the new galleries at Tullie House (the Roman Frontier Gallery – Mills *et al*., 2013) and the Roman Army Museum. The Framework has also been instrumental in supporting the concept of a landscape interpretation centre which is being taken forward by the Northumberland National Park in its Sill project[22]. The Sill opened in 2017 as the UK's National Landscape Centre with the vision *"…to transform how people connect with*

[21] See http://www.ahi.org.uk
[22] See https://www.thesill.org.uk/

landscape and to inspire a new generation and generations to come".

Conversely, the Framework has been criticised by some for including the secondary theme of the natural and cultural landscape within an Interpretation Framework for the World Heritage Site. By all means develop an interpretation framework for the countryside around Hadrian's Wall, the argument runs, just don't label it as being part of the Interpretation Framework for the World Heritage Site.

Recent improvements to interpretation at Housesteads are perhaps a case in point. The National Trust and English Heritage are to be congratulated on joining together to create a seamless visitor experience. This is a significant step forward for the visitor who had previously to negotiate the complexities of different parts of the site being under different management and different charging regimes. The new interpretation at the museum by the fort includes an outstanding short film with high quality reconstructions of the fort buildings. However, it seems to this author disappointing that more attention has not been paid to the landscape in which the fort is set and which forms so important a part of the visitor experience. This could have included a more comprehensive exploration of both the exceptionally well preserved and visible Roman military landscape around the fort, and the rich cultural and natural landscape in which this Roman landscape is now set and which is so imposing for the visitor.

Conclusions

Whilst it may seem obvious to the visitor that the monument and its landscape inter-connect, and that their management should be integrated, in practice this seems a difficult concept for those charged with managing the World Heritage Site to apply. This may be because integrated approaches require a focus on the boundaries of the different disciplines and areas of professional expertise and it is already enough just to get the day job done. The needs of the Planning system for instance require a clear and simple statement of what needs to be protected and why, that can stand up in court. Nonetheless it does seem unfortunate that further progress has not been made in delivering the aspiration of the Management Plan for greater integration of cultural and natural values, and in ensuring that the contextual values represented in the OUV are given due prominence in management and presentation.

Hadrian's Wall long distance National Path, Steel Rigg, Northumberland © NT Images/Joe Cornish

References

Adkins, G., and Holmes, N. (2011). Frontiers of the Roman Empire World Heritage Site – Hadrian's Wall Interpretation Framework Public Engagement Appendix. Hexham: Hadrian's Wall Heritage Ltd,

Adkins, G., Holmes, N., and Mills, N. T. W. (2013). The Hadrian's Wall Interpretation Framework: Audience Research. In Mills, N. T. W., (Ed.) *Presenting the Romans*, (pp.157-69). Woodbridge: The Boydell Press.

Adkins, G., and Mills, N. (2011). Frontiers of the Roman Empire World Heritage Site – Hadrian's Wall Interpretation Framework. Primary Theme: The north-west frontier of the Roman Empire. Hexham: Hadrian's Wall Heritage Ltd.

English Heritage (2009). Stonehenge World Heritage Management Plan 2009.

Hadrian's Wall Management Plan 2008 – 2014 (2008). Hexham: Hadrian's Wall heritage Ltd

Hulse, M., Scott, B., Scott, J., and Smith, H. (2011). Frontiers of the Roman Empire World Heritage Site – Hadrian's Wall Interpretation Framework. Secondary Theme: The natural and cultural landscape of Hadrian's Wall. Hexham: Hadrian's Wall Heritage Ltd.

Mills, N. T. W., and Adkins, G. (2013). The Hadrian's Wall Interpretation Framework. In Mills, N. T. W., (Ed.) *Presenting the Romans*, (pp. 171-80). Woodbridge: The Boydell Press.

Mills, N. T. W., Padley, T., Scott, J., Branczik, L., and Adkins, G. (2011). Applying the Hadrian's Wall Interpretation Framework. In Mills, N. T. W., (Ed.) *Presenting the Romans* (pp.181-91). Woodbridge: The Boydell Press.

Creswell Crags – from the sublime to the revelatory

Roger Shelley, former Director, The Creswell Heritage Trust
Creswell Crags (Tentative List) whc.unesco.org/en/tentativelists/5671/

Creswell Crags: today the Magnesian Limestone gorge is artificially flooded and gorge sides wooded with cave entrances on both sides of the gorge © Creswell Heritage Trust

Creswell Crags gorge cuts through the Magnesian Limestone escarpment which stretches from the Durham Coast to Nottingham. The Magnesian Limestone was deposited during the Permian Period in a shallow, carbonate-rich sea – the Zechstein Sea – which occupied the North Sea Basin 255 million years ago. Subsequent uplift and erosion has produced the Magnesian Limestone escarpment which is cut by a number of deep, incised, gorges and valleys.

These gorges and valleys were cut during the Pleistocene Ice Ages in response to significant volumes of glacial meltwater and the removal of the weight of ice from the landscape leading to rapid uplift (isostatic rebound). Caves developed in the soft Magnesian Limestone at Creswell Crags providing protection for early hominids during the Pleistocene. Today, the sediments that gradually infilled the caves and fissures provide evidence of this occupation with a diverse archaeological and palaeontological record. The remains of mammals (large and small: lions, hyenas, bears, woolly rhinoceros, mammoths, hares, voles and shrews), birds and fish drew the attention of Victorian archaeologists to the significance of the Crags and in 1875 the first systematic excavations at Pin Hole, Robin Hood and Church Hole caves were undertaken.

There is evidence of repeated occupation including Neanderthals between 55,000-30,000 years ago, hunter gatherers at 28,000 years, and the return of modern humans from 14,000 years ago. Most notable is the dated (13,000-11,000 years ago) man-made portable and *in situ* art recorded at Creswell. William Boyd-Dawkins recorded in 1876 a fine engraving of a horse head on a bone rib (about 7cm long) from Robin Hood cave – one of the best known

pieces of portable art from the Palaeolithic found in Britain. In 1920 two further engraved bone fragments were found in Pin Hole cave including 'Pin Hole Man'. In 2003 unique, *in situ*, bas-relief carvings, including deer, bear, birds and various geometric symbols, were found in Church Hole, Robin Hood and Mother Grundy caves.

Creswell Crags – the sublime

Before considering the importance of Creswell and its 'resident' art, how has Creswell influenced the more recent 18th century? The Creswell area was composed of wild, undeveloped private hunting lands. It was of this part of Nottinghamshire that Sir George Savile wrote in 1761, it has "*Four Dukes, Two Lords and Three rabbit warrens*".

One of the first outsiders to record their visit to the area was Mary Delaney, the artist and letter-writing friend of the dowager Duchess of Portland, who visited the Crags in September 1756. But this was only after their botany expedition had its way cleared for them by the Duke's stewards, who cut paths through thickets of brambles and briars, and made bridges in swampy places. She described an imposing limestone gorge:

"*It is a little Matlock; two ranges of rocks towering, as it were in rivalship of one another, feathered with wood, embossed with ivy, diversified with caves and cliffs. Between the ranges runs a clear brook babbling along. Cottages here and there, patches of verdure with sheep feeding, and some climbing and standing on the pinnacles of rocks like goats… Near the end of the range, there is a mill, and there the prospect opens to a fine and extensive view of Derbyshire*."

These cottages would have been those of shepherds, lime-burners and quarrymen working on the Welbeck Estate. The water mill is shown in the painting by George Stubbs, *"Two Gentlemen going a shooting, with a view of Creswell Crags"*, exhibited at the Society of Artists in 1767, and clearly depicting one of the large cliff faces at the southern end of the gorge.

The Crags feature further in the works of Stubbs. He made several visits in the 1760s, using it as a backdrop for his studies of horses (as Judy Egerton (1984) has described): Stubbs was certainly conscious of the 18th century concept of the greatness of nature – more than simply natural beauty – known as the "sublime". A phrase originally coined by English travellers at the turn of the 17th/18th centuries on their journeys to the Alps. But in fact Stubbs' use of the landscape at Creswell at this stage appears to be a faithful representation, not imaginative exaggeration. The same also applies to sketches by Major Hayman Rooke, the Nottinghamshire antiquarian and early archaeologist, which also date from the late 18th century. These images are particularly interesting, not only because we can identify individual rock formations, but also for the absence of the vegetation which is today quite invasive in parts of the gorge.

Where Stubbs does depart from reality is in his Horse and Lion paintings, dating from around 1770. Stubbs completed 17 works, either influenced by his personal experience of seeing a horse attacked by a lion on a visit to North Africa, or by a Roman copy of a Greek sculpture. Even more exotic is his '*Cheetah and Stag with two Indians*' and his *"Tygers at Play"* (in fact, leopards). The rising limestone escarpment of the Crags forms the central background in both of these.

We can speculate how far Stubbs was aware that animals of this kind; wild horses, deer, big cats, were in fact part of the local fauna at Creswell some thousands of years earlier. There is no evidence that he ventured into the caves, and there was no systematic exploration of caves in Britain until 1816, but it was certainly the case that over the course of the next century, local people were discovering the bones of many different animals.

Creswell Crags – the revelatory

By the end of the 20th century Creswell Crags was already well established as a site of national/ international importance for the study of Pleistocene cave deposits and Palaeolithic cave artefacts. In 1981 it was notified as a Site of Special Scientific Interest recognising its rich fossil vertebrate fauna, in 1985 it became a Scheduled Monument reflecting the evidence of hominid occupation. What lifted it into a new orbit was the discovery in April 2003 of Britain's only confirmed Ice Age cave art.

The Ochre Horse – the oldest known carving of its type in Britain

Why did it take so long to find this? Historical happenstance. Early excavations in the 1870s were very intrusive. Large amounts of material were removed, lowering the level of the floor of most of the caves to well below the upper wall and ceiling areas. The study of parietal (wall) cave art itself is very modern – beginning at Altamira in Spain in the 1880s – people simply didn't understand or if they did, record their observations of what we now know to be significant art. It was a team of specialists in cave art from Britain and Spain who made this amazing find – at Creswell there are now acknowledged to be 23 confirmed engraved pictures in Church Hole, and one apiece in Robin Hood and Mother Grundy caves. There may easily be more.

The first image to be discovered was the red deer, originally thought to be an ibex. It is a series of gouged lines made using a flint tool, but typically also, using the natural formations of the rock where this helps. It is easy to be misled by the later graffiti. Bear in mind that we are also looking at this some 13,000 years after it was created, on a surface which has suffered weathering erosion (unlike the ideal conditions for preservation of portable art), and subsequent graffiti. There has even been an attempt to scribe a beard under the deer's chin and turn it into a goat – so clearly someone was thinking along the same lines as Paul Bahn, Paul Pettitt and Sergio Ripoll, long before their discovery in 2003. It is also highly likely that the art would have been accentuated by coloured pigments and dyes.

The deer and bison are highly typical of cave art found in other European locations. This is almost always on softer limestone or sandstone, often using pronounced features of the rock surface, a technique known as bas-relief. This style is known to cover 25,000 years, so the Creswell examples, thought to date from around 12,800 years ago, are towards the end of the period. Dating is by a combination of radio-carbon dating of adjacent charcoal deposits, uranium series analysis of coatings of calcite, which have covered parts of the images, and stylistic comparison, including the portable art found on animal bones.

This example could either be stylised female forms or long-necked birds. There are clear links to continental art, such as a now portable piece from Lalinde in Dordogne (now in the Field Museum, Chicago).

This is an exciting new dimension to our subject of nature and culture – it is widely acknowledged that rock art is a feature of nomadic hunter-gatherer societies. It is also worth considering that the place itself is significant – the deer, bison and the unique ibis – are all located quite close to the Church Hole cave opening – the cave itself is north facing, unlike those on the other side of the gorge recording higher levels of human occupation. It is visible in natural light, particularly at certain times of day, at certain times of year and in certain weather conditions. The more enigmatic art is towards the rear of the cave.

There are still many open questions – it is likely that the cave art is a way of identifying territory, may also represent a ritual or calendar site, a shrine to abundant, or conversely, scarce species, fertility magic or "sympathetic magic" – although certainly not all of the featured images are the subject of hunting. Cave art is now a central part of the visitor experience at Creswell, both in terms of tours and on site at the Visitor Centre.

Naturally cultural or culturally natural?

Creswell Crags is on the UK tentative list for World Heritage nomination. It is being put forward under Criterion (v) on the basis that "*The wealth and range of archaeological and palaeoenvironmental evidence from Creswell Crags provide a unique testimony to the adaptive response of hunter-gatherer cultures across north-west Europe who colonised extreme northern geographical landscapes during the last Ice Age"*'.

The cultural value of Creswell Crags is intimately associated with its natural attributes. The location is defined by its geology and geological history, most recently the advance and retreat at the northern limits of ice in Europe. The cultural "artistic" response – portable and *in situ* art – reflects the natural environment including location, the shape and form of rock, and the animals encountered. Even the cultural response of the 18th century onwards has been driven by the "wild" qualities of the landscape, expressed in the writings of Mary Delaney and art of George Stubbs.

The distinction between culture and nature are truly blurred, one requires the other.

Our general philosophy of conservation is designed to reinforce both the natural and cultural strands of the site – to retain, preserve and enhance the integrity of the scientific and interpretive resource and visual amenity of Creswell Crags, its setting and its wildlife habitats through a process of on-going, active management and presentation.

As we work towards our final Outstanding Universal Value statement, we need to be aware particularly of how the site at Creswell is part of a much greater European natural and cultural phenomenon, and one that is still able to throw up new evidence - the real excitement of the 21st century for us is the distinct possibility of finding more.

References

Egerton, J. (1984). George Stubbs and the Landscape of Creswell Crags. The Burlington Magazine.

The Lake District: the case for inscription as a World Heritage cultural landscape

John Hodgson, Lead Adviser: Historic Environment and World Heritage Coordinator Lake District National Park Authority

The English Lake District World Heritage Site whc.unesco.org/en/list/422

View of Ullswater from Gowbarrow. This view includes the enclosed in-bye land of Glencoyne Park, the woodland surrounding the celebrated waterfall at Aira Force and the Gothic hunting lodge of Lyulph's Tower (centre left), built in 1780 for the Earl of Surrey and one of the earliest picturesque houses in the Lake District. The daffodils in the Glencoyne woodlands inspired Wordsworth's poem 'The Daffodils' and large parts of this landscape are owned and managed by the National Trust

The Lake District is an area of acknowledged beauty and quality and has been at the heart of debates about landscape appreciation and protection for over 250 years. The Lake District was put forward as a candidate for World Heritage inscription in 1986 and then in 1989. Although it was acknowledged that there was a good case for outstanding universal value (OUV), the applications were deferred on both occasions due to UNESCO's difficulty in placing the Lake District in any of the existing World Heritage categories. The first application was as a 'mixed cultural and natural' site and the second as a 'cultural site'. In 1992, partly as a result of the Lake District's applications, UNESCO developed and adopted the new category of World Heritage 'cultural landscape' (see Appendix 2). A new application has now been developed by a wide partnership for the Lake District to become a World Heritage cultural landscape.

It was submitted in January 2016 for consideration by the World Heritage Committee in 2017 (and inscribed in July 2017).

The proposal for World Heritage inscription of the Lake District as a cultural landscape has highlighted some important issues regarding cultural and natural attributes and their management.

Background

The broad elements of the Lake District's case for outstanding universal value (OUV) have been known for some time. However, the details have been refined through development of the current bid and were finally agreed as a result of compiling a Technical Evaluation for the UK government in 2013. The case for OUV centres on the following three themes:

a) The Lake District is a landscape of exceptional beauty, shaped by persistent and distinctive agro-pastoral traditions which give it special character.

The Lake District landscape is a product of complex geological processes including volcanic activity, sedimentary deposition and glaciation. It is a compact area of mountains (relatively small by global standards) and long, deep valleys which radiate out from the centre, making movement between them relatively difficult. This contributes to an impression that the area is larger than it is in reality but its compact dimensions are of a human scale, contrasting sharply with more massive mountain ranges such as the Alps. The area has been settled by humans for around 10,000 years and has a rich inventory of prehistoric remains. By the first millennium BC an agricultural pattern began to emerge of arable agriculture in the valley bottoms coupled with the grazing of animals on the fells. In the medieval period (from around the 12th century AD), this pattern of land use had begun to lay the physical foundations of the traditional farming landscape that has been inherited today.

Traditional Lake District farming is based on the rearing of cattle and native breeds of sheep and is closely adapted to the constraints of its spectacular mountain setting. This has created a cultural landscape characterised by a distinctive pattern of stone walled fields for grain and hay in the valley bottoms (in-bye), stock enclosures on the fell sides (intake), open fell grazing and distinctive types of farm buildings. Customary tenure of farms has provided a high degree of independence for farmers and a system of communal stock management is practiced, which is underpinned by continuing customs and traditions and hardy breeds of sheep which are 'hefted' to (i.e. stay within) their own areas of fell.

The native Lake District sheep breeds are the Herdwick and Rough Fell, while Swaledales are also widely farmed. The Herdwick is geographically concentrated in the Lake District with 95% of the population found there. This breed is derived from ancient stock which have adapted to the harsh conditions of the Lake District mountains. Recent DNA analysis has demonstrated that the Herdwick originated from a common ancestral founder flock which was also the origin for breeds in Sweden, Finland and Iceland, indicating that the ancestors of modern Herdwicks were most likely brought to the Lake District by Norse immigrants in the 10th century AD.

The continuing vitality of the Lake District's farming culture is a key part of its significance. There is a strong pattern of family farm tenure with relatively high owner-occupancy and the transfer of knowledge and skills over generations, a 'hefted' grazing system which allows communal shepherding without fences and walls on one of the largest areas of common grazing in Europe, shepherds' guides and breed societies, and the survival of a local dialect, remnant language, and traditions.

The acknowledged scenic beauty of the Lake District is rooted in the vital interchange between its agro-pastoral agriculture with the spectacular natural landscape of mountains, valleys and lakes.

b). The Lake District is a rich cultural landscape which has inspired artistic and literary movements and generated ideas about landscape that have had global influence and have left their physical mark.

The Lake District was "discovered" as a place of picturesque and sublime beauty in the mid-18th century and quickly became the focus for visits by the English educated classes. This was quickly followed by the deliberate addition of features designed to improve its acknowledged beauty, including villas and landscape gardens.

Towards the end of 18th century the first stirrings of the Romantic Movement, were becoming evident across Europe. The Lake District was at the heart of the English version of this, taking inspiration both from the Lake District's scenic landscape beauty and its farming culture. This followed the return of William Wordsworth to his native Lake District in 1799. The development of Romantic thought, principally through the writings of William Wordsworth and other 'Lake Poets' produced a new and influential view of the relationship between humanity and landscape. At the heart of the Romantic Movement was a strong belief and interest in the importance of nature and the human response to it: through the landscape, individuals could discover their sense of self.

Lake District landscape and culture were constantly used by Wordsworth as a backdrop for much of his work. The *"Lyrical Ballads"* (1798) were a turning point in the perception of environmental ideology and a wider and different view of the world. The "harmony" of man and nature, which Wordsworth praises, is a balance between tough, resilient people, and the challenging environment from which they make a living. Both Wordsworth and Coleridge are now considered to be key originators of environmental thinking as their writing highlighted the important concept of the relationship of humans and nature and vice versa. This was a new appreciation of landscape, based on a view of nature and people living alongside each other in harmony rather than admiration for nature in its wild and unaltered state.

Seathwaite Farm in the Lake District © Andrew Locking

Wordsworth's views on the aesthetics of landscape and its management were outlined in his *Guide* and were linked to the emerging idea of the legitimacy of wider public interest and participation in the Lake District. The Guide includes his famous aspiration that

"…*the author will be joined by persons of pure taste throughout the whole island, who, by their visits (often repeated) to the Lakes in the North of England, testify that they deem the district a sort of national property, in which every man has a right and interest who has an eye to perceive and a heart to enjoy".*

This is generally acknowledged to be the first expression of the idea of protected landscapes.

c). The Lake District has been the catalyst for key developments in the national and international protection of landscapes.

The Picturesque interest in the English Lake District from the mid-18th century was accompanied by recognition by a small number of new landowners and guidebook writers that the innate natural beauty of the Lake District could be damaged by inappropriate development and that this could be prevented by direct action in terms of ownership and management.

A key example of this is demonstrated by the history of Crow Park at the head of Derwent water. In 1751 the owner, Greenwich Hospital, felled a number of mature oak trees for income. As the scenic beauty of this landscape had already become highly valued, the felling attracted much criticism. It was recorded for a wide audience in a well-known print of Derwent water by Thomas Smith of Derby in 1761. In 1832 the industrialist John Marshall purchased this same land as a direct result of his friend Wordsworth's fear that land at the head of the lake would be otherwise be subdivided and sold for villa development. The highly valued wooded character of the shore of Derwent water was thus maintained and in the 20th century became an important part of the National Trust's holdings in the Lake District.

Pioneer conservation initiatives such as these were driven by wealthy individuals who desired to protect the beauty of the Lake District landscape. Others, such as Beatrix Potter (Mrs Heelis) and GM Trevelyan, were inspired by a sense of the value of the traditional, farmed landscape and the society which produced it and purchased farms in order to preserve the system of agro-pastoralism. Many of these properties were eventually given to the National Trust to form the basis of its extensive land holdings in the Lake District.

As threats – notably railways, reservoirs and commercial afforestation - increased during the 19th and 20th centuries, the response was a series of hard fought conservation battles in the Lake District. Successes included the prevention of several attempts to extend the railway from Windermere to Grasmere and beyond and the agreement with the Forestry Commission to exclude commercial conifer planting from the majority of the Lake District in 1936. A failure at the time was the battle over construction of the Thirlmere reservoir in 1890 but ultimately this proved to be possibly the most important catalyst for the further development of the conservation movement. The opposition to the Thirlmere reservoir was led by a number of pupils and followers of John Ruskin, some of whom were also resident in the Lake District. These included Canon Hardwicke Rawnsley and Robert Somervell along with others including Octavia Hill. The proposal for the National Trust, based on ideas from Ruskin, had been developed for some time by Robert Hunter (solicitor for the Commons Preservation Society who had been involved with Ruskin in the fight against a proposed railway from Borrowdale to Buttermere) and Octavia Hill and came to fruition following the enlistment of Hardwicke Rawnsley with his experience of environmental

campaigns in the Lake District. The National Trust was established in 1895 and now owns over 20% of the Lake District, including 94 hill farms. It is a model for landscape protection that has inspired the establishment of National Trusts or similar non-governmental organisations in over 70 countries, which led to the establishment of the International National Trusts Organisation in 2007.

Another strand of conservation to emerge from experience in the Lake District was the formal designation and protection of lived-in, working landscapes at both national and international levels. The Lake District was at the origin of UK national parks, and strongly influenced the idea of the International Union for Conservation of Nature's (IUCN) Category V protected areas: Protected Landscapes and Seascapes. A third strand is the part played by the Lake District in the creation of the World Heritage cultural landscape category in 1992.

The Lake District was therefore submitted for World Heritage inscription as a cultural landscape which been designed and created intentionally, displays organic evolution which is continuing and is associated with universally important ideas about the relationship of humans with landscape and about models of landscape conservation. It is being proposed under criteria (ii), (v) and (vi).

4. The management of cultural and natural values in the Lake District

The Lake District National Park is currently managed by the Lake District National Park Partnership, which is administered by the National Park Authority and includes 25 major organisations with interests in the area. These include national agencies, the National Trust, county and district councils, local conservation bodies and the business community. This type of inclusive management structure is a first for UK National Parks and the Partnership has formally adopted the World Heritage inscription bid.

As a result, the statutory National Park Management Plan is now the Lake District Partnership Plan. It has also been decided to incorporate the requirements for World Heritage management so that we will have a single management plan for the Lake District. The basis of this combined Management Plan will be protection of the National Park

Special Qualities and the defined attributes of OUV while maintaining a prosperous local economy and vibrant local communities.

The Special Qualities which have been identified for the Lake District National Park cover the full range of landscape values including both cultural and natural elements. This reflects the requirements of the first statutory duty for UK National Parks. The defined attributes of OUV which underpin the case for World Heritage inscription as a cultural landscape are included entirely within the National Park Special Qualities. The key focus of World Heritage cultural landscapes is on the interaction between humans and the natural environment and thus both cultural and natural values are the focus of overall management of the site.

The relationship between the management of natural and cultural values in the Lake District had already been the subject of some intense discussion prior to development of the current bid for World Heritage inscription. The principle mechanism for landscape conservation in the Lake District in recent years has been agri-environment grant schemes – the Environmentally Sensitive Area (ESA) scheme, 2003–2014, Environmental Stewardship (ES), 2005 and ongoing, and Countryside Stewardship (CS) from 2015. The approach of the ESA was relatively comprehensive and in addition to grants for conservation of the natural environment, it also included funds for conservation of archaeological features and historic farm buildings – at a cost of over £6 million for the latter. The archaeological grants available under ES increased from 80% to 100% of cost, which resulted in more archaeological conservation, but the number of historic building grants decreased dramatically due to changes in the EU rules for agri-environment schemes.

The implementation of ES coincided with increasing concerns over the potential effects of climate change and the poor state of biodiversity in the Lake District, along with increasing emphasis on the concept of eco-system services. Although a broad definition of eco-system services does include a cultural element, its principle management concerns are with protecting the natural environment. In addition, around 18% of the area of the Lake District is designated as Sites of Special Scientific Interest (SSSI) – as with other UK National Parks, a relatively high proportion of land. It is therefore not surprising that in the Lake District the implementation of ES has resulted in a focus on outcomes such as the conservation of peat deposits, protection of soils, the dissipation of water run-off to prevent flooding and the general improvement of biodiversity. Specific actions to achieve these have included the reduction of sheep numbers on common land grazing and the planting of new native woodland, often accompanied by extensive fencing for protection. These issues, along with pressure for a move away from the canalisation of water courses in order to slow water run-off, have caused some controversy. Other grant-aided actions such as the re-introduction of small breed cattle onto open fell grazing to reduce bracken growth through trampling and thereby improving biodiversity, are less contentious.

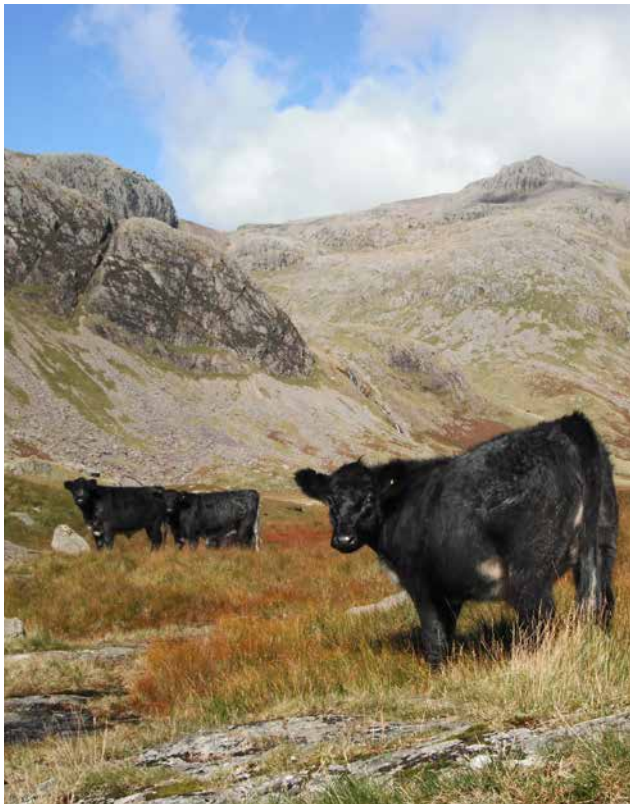
The issues that most disturb farmers are those that affect grazing practices. Reductions in stocking levels could threaten the traditional practice of communal management of Lake District fell grazing, in which flocks of native sheep are 'hefted' to their own areas of fell and thus reduce the need for intensive shepherding. The economic and/or practical effects of stock reduction could even threaten the survival of small farms, and the resulting loss of entire flocks could further exacerbate the threat to traditional common land management. A decline in the overall numbers of native sheep breeds such as the Herdwick could threaten their blood lines and long-term survival. The planting of trees and the loss of parts of in-bye fields through not maintaining canalised water courses can lead to a reduction in available grazing land. Fencing off areas of fell, if not carefully planned, can disrupt the gathering of sheep.

The anxiety in the Lake District farming community over the future of traditional farming practices, which must be viewed against the set-back of the 2001 outbreak of Foot and Mouth disease, led the National Park Authority in 2011 to issue a statement of support for farming in order to confirm its importance for maintaining the Special Qualities in the National Park. The current bid for World Heritage inscription for the Lake District has also highlighted the importance of traditional agro-pastoral farming - it is a key component of the case for OUV for the Lake District cultural landscape.

However, this must be set against the imperatives of dealing with the long-term effects of a changing climate and improving the poor condition of parts of the natural environment. There is therefore clearly a need to find a way of achieving the objectives of conservation of the natural environment while protecting the cultural heritage of traditional farming. In many respects, natural and cultural values in the Lake District are interdependent and damage to one will often result in damage to the other. The solution is likely to lie within the integrated management approach to which the National Park Authority, on the basis of its first statutory purpose, has always aspired. In order to achieve this we will certainly need to acquire more information, including through experimental projects. We need answers to questions such as what level of stock reduction is required for an appreciable improvement of biodiversity on the Lake District fells, and for how long? What is the minimum number of sheep required on a hefted fell in order to maintain the traditional system of management and how many Herdwick flocks are needed in order to maintain a healthy breed?

We will need to focus on management actions which have benefits for both the natural and cultural environments. Current examples include the work of the National Park's Archaeology Volunteer Network to control bracken on archaeological sites. This both protects archaeological remains and controls a plant which is detrimental to livestock. In the long term, the sustainable control of bracken over wide areas of the Lake District fells, without the use of chemicals, will require other solutions. These will include the re-introduction of hardy breeds of cattle which would keep the bracken down through trampling. Returning open fell grazing to a mix of cattle and sheep would be to return to farming practices of the mid-20th century and earlier, and would assist in developing more sustainable long-term management.

We will need to identify sources of funding for the development of a more sustainable system of integrated land management and to ensure that it is economically viable in the long term. Following the UK's decision in 2016 to leave the European Union, there is great uncertainty over the nature and level of agri-environment grant schemes after 2020. It is also a weakness that there are currently no grant schemes for conserving important cultural landscapes. This is likely to increase the need for profitability of the farming system itself and in this regard the recent award of Protected Designation of Origin (PDO) to Herdwick mutton could be of assistance. This could prove to be an important marketing tool to help increase profit margins and the inscription of the Lake District as a World Heritage site would no doubt help in this regard – special food from a special landscape. Studies carried out for the Lake District National Park Partnership have also indicated that World Heritage inscription could have other economic benefits for the area, including attracting higher spending visitors who stay longer.



Cattle grazing on the Great Moss below Scafell Pike

Finally, the integrated management of natural and cultural values will require planning for the medium to long term. For example, fencing schemes that are currently being implemented on common land in the Lake District, with Secretary of State approval, have conditions imposed for removal after 15 years. This is a relatively short time in landscape terms and the short-term disadvantages for access and visual amenity may be outweighed by the longer-term benefits for biodiversity. However, the effects on the practicalities and profitability of the farming system also need to be taken into account.

The bid for World Heritage inscription for the Lake District has undoubtedly brought a welcome focus on the cultural landscape and to traditional farming culture in particular. Development of the case for OUV, along with the wider issues of farming and management of the natural environment which have been described above, has highlighted the need for an integrated approach to looking after this outstanding cultural landscape. This is wholly in line with the case for OUV which includes the importance of the Lake District as the place which, above all others, inspired the birth of the landscape conservation movement.

Discussion and conclusions

Jonathan Larwood, Sarah France, Chris Mahon and **Alma Roberts**

"*Culturally natural or naturally cultural*" set out with the ambition to explore the benefits, challenges and opportunities of better understanding the relationship between cultural and natural heritage. In particular, an examination of the practicalities of managing places in an integrated way was explored through the experience of managing UK World Heritage Sites. A number of themes have emerged.

Cultural and natural heritage – how connected are they?

Cultural and natural heritage are unequivocally and intimately connected. This was a view widely held and unchallenged in our Fountains meeting. The two are inseparable and in the UK on a site basis there is nothing that is totally natural and equally, nothing that is totally cultural. Even for the remotest upland or most isolated coastal system the natural environment has in some way been altered – reflected in the wide use of the term 'semi-natural'. Similarly, a cultural heritage of built structures, and changed and designed landscapes, acts as host to numerous species and habitats, and utilises natural resources in its location, design and construction.

The categorising of cultural and natural heritage, with different World Heritage criteria (see Appendix 2), however, can miss opportunities to understand and benefit from overlapping heritage values. For example, the cultural significance of Fountains Abbey and Studley Royal is enhanced in its management through understanding the natural context and the functioning of natural processes while the cultural landscape of Blaenavon Industrial Landscape World Heritage Site gains significant mutual benefit from the management of its biodiversity and geodiversity assets which connect directly to the industrial history of the site, and the changing natural values of a post-industrial landscape.

Cultural and natural heritage – different values?

At Fountains Abbey and Studley Royal there is a consistency of value, from its original 18th century conception as an English landscape garden inspired by the form of the natural landscape to today's OUV, that emphasises how the "natural geology and topography of the site have been explored and exploited for their expressive possibilities".

In contrast, the values we hold for a place can change over time. For example, the OUV we place on Ironbridge Gorge World Heritage Site is very different from the contemporary value that was placed on the working and industrial environment of the 18th century Ironbridge of Abraham Darby. Today a World Heritage Site is an amalgam of values beyond its OUV: the Stonehenge, Avebury and associated landscapes World Heritage Site is a landscape of unparalleled archaeological value, alongside a place valued today by new-age pagans, a working landscape for many farmers, and is of international importance for its chalk grassland.

The importance of local value is also critical to remember and should not be lost in over emphasis of OUV (or other designation). Local values are often more important to local communities than the global significance of World Heritage. On the Giant's Causeway much emphasis is placed on telling the legend of giants, exploring local histories of fishing and agriculture, alongside the geological formation of the Causeway lava plateau.

Different values here can present opportunities and challenges for managing the relationship between cultural and natural heritage – it is important to be aware of these differences. Cultural values on the Giant's Causeway are beneficial and used to strengthen the value of the underlying natural OUV. At Fountains Abbey and Studley Royal the removal of an island, valued for its local wildlife but damaging OUV, was controversial and required considerable care to explain and achieve, while the most popular social media photograph of Fountains and Studley Royal has been a kingfisher perching on the restored statue of Neptune (see back cover).

Cultural and natural heritage – different disciplines?

Despite the intimate connection there is a strong and traditional dichotomy between how we respond to cultural and natural heritage. This has established (and is reinforced) through different academic backgrounds, training, legislation, government and governance structure establishing different boundaries, different terminology and language, and different approaches to conservation.

At a global level this is illustrated through UNESCO. Despite the cultural-natural heritage commonalities (see Appendix 2), the World Heritage Convention has separate bodies to deal with cultural heritage (ICOMOS) and natural heritage (IUCN). To overcome the separation this created World Heritage criteria were placed in one list which helps associate these values, there are mixed World Heritage Sites (which have both qualifying natural and cultural criteria), and a cultural landscape category (which emphasises "the combined works of nature and of man") (see Appendix 2) and further connects across heritage interests. ICOMOS and IUCN are also actively collaborating to strengthen this relationship through the current World Heritage Leadership Programme and associated training.

At a national level in England collaboration between Historic England (cultural) and Natural England (natural) through a formal memorandum has enabled mutual overlap in designation and interests to be understood and opportunities for collaborative working to be established.

At a site level this can narrow participation, for example the City of Bath World Heritage Site as a cultural site has always had strong involvement with Historic England, but not Natural England despite the importance of the natural setting in both design and well-being, as well as the critical presence of an active hot spring. Conversely, sites such as Fountains Abbey and Studley Royal and Stonehenge and Avebury have diverse and cross-cutting partnerships which perhaps reflect their more immediate and explicit relationship between natural and cultural assets.

The National Trust, because its assets span the cultural-natural continuum, has established a Conservation Performance Indicator that encompasses all heritage interests and assets (without specifically categorising as cultural or natural) and developed an approach to "Spirit of Place" that summarises and captures the way people respond to a location in all its facets. The approach adopted by the National Trust is valuable as it is less defined as to whether an asset is cultural or natural, rather, for example, gardens, parks and houses are considered in their entirety (a combination of natural and cultural elements).

Culturally natural or naturally cultural - the benefits of thinking this way

Cultural and natural heritage is inseparable, a continuum - this is widely agreed. Thinking this way can be challenging but can bring benefits that are important to consider when barriers to this connection are presented and can strengthen the mutual value of cultural and natural heritage. These benefits include:

1. Perhaps most importantly, considering natural and cultural heritage together deepens people's understanding and valuing of special places. In many ways this is most notable through natural WHSs which have widely used cultural connections to strengthen links with both visitors and local communities.

    - The Giant's Causeway, in particular, has benefited the cultural 'iconism' of this World Heritage Site. The legend of giants is used to connect people to the story and formation of the Causeway Coast and the basalt columns of the lava plateau are widely recognised as a symbol of Northern Ireland.

    - On the Jurassic Coast connecting to the local history of quarrying and coastal smuggling, use of geological materials in building, and representation of the coast in literature all provide different routes to connecting with the geological natural heritage that defines OUV.

    - At Fountains Abbey and Studley Royal a deeper consideration of geodiversity has added to the way the World Heritage Site is understood, and deepened the narrative that is presented to visitors – linking geodiversity to settlement, construction and design.

    - The natural features of the River Clyde (and associated Falls of Clyde) are explicitly connected to the water powered mills of the New Lanark World Heritage Site and the river is a common starting point for the presentation of the site's cultural history.

2. Looking beyond the reason for designation is critical. For many, OUV is not the most important value and understanding this will better connect with different communities.

    - On the Giant's Causeway, as important as telling the story of the formation and legends of the coastline is reflecting on the links between local communities and that coastline – here through fishing and agriculture (both of which connect back to the underlying natural value).

    - Stonehenge and Avebury, an area of outstanding archaeological value, accommodates the values of new-age religious beliefs, the management of chalk grassland, and naturally occurring sarsen stones (from which the monuments are built).

Blenheim Palace World Heritage Site – naturally cultural or culturally natural? The 18th century Palace was designed by the architects Vanbrugh and Hawksmoor and is faced with locally quarried Clypeus Grit limestone. The Lancelot "Capability" Brown Parkland, which modifies the River Glyme, is considered one of the greatest examples of naturalistic landscape design © Blenheim Palace

- There is significant overlap between natural designation and cultural World Heritage. These overlaps need to be better understood, this will avoid potential management conflict, establish new ways of managing, and potentially release new resources – such as the arts projects and programmes of the Jurassic Coast.

3. Linking cultural and natural heritage creates new partnerships and funding opportunities, and widens your constituency of support.

- At Stonehenge, Avebury and associated landscapes World Heritage Site the establishment of the overlapping Marlborough Downs Nature Improvement Area has opened up opportunities to work more closely with farmers with a particular interest in the natural environment. These connections are further strengthened through Countryside Stewardship funding which supports sensitive management of the World Heritage Site's landscapes – a benefit also realised on Hadrian's Wall.

- Managing the wider World Heritage buffer zone as seen in both Bath and Saltaire is as much about managing the natural setting as the cultural value and widening partnership and collaboration is critical – for Saltaire this cuts across a number of local authority departments, the Canal and River Trust, Environment Agency and numerous community groups involved in green spaces and countryside.

4. Better understanding the natural/cultural wider context of a World Heritage Site can help achieve better management.

- At Fountains Abbey and Studley Royal in practical terms working beyond the boundaries of the World Heritage Site is critical. This includes managing views and vistas within and outwardly from the site and critically, being involved in the management of the River Skell catchment to manage flooding and sediment input – upstream and downstream.

- Creswell Crags is valued in part as a consequence of its wider context – geographically and geologically. Geographically Creswell Crags was located at the southern limit of ice advance during the last ice age influencing the long term occupation of the gorge cave system and human response to environmental change. The geological record of environmental change is locked in the cave sediments, and the cave system and gorge formed through early ice age erosion and weathering.

- Geodiversity, a natural resource that is often undervalued, connects naturally between natural and cultural heritage. In underlies and shapes all the World Heritage Sites discussed in this report, geodiversity provides the raw materials that these sites have utilised, been constructed from, or designed in response to. Understanding geodiversity – time, change and process – provides a wider context that helps engage different people and understand how a place will change over years, decades, centuries, and beyond.

In drawing this report to an end, it's publication coincides with the UNESCO inscription of The English Lake District World Heritage Site (9th July 2017) This has been inscribed as a cultural World Heritage Site and categorised as a cultural landscape which in many ways espouses the findings of this report. The Lake District is a place defined by its natural beauty (a combination of geological history and biodiversity), through traditional farming there is an intimate relationship with the communities of the area (accommodating the challenge of natural elements over a thousand years), and finally, the Lake District has been central to establishing many of the principles of natural and cultural conservation (together) which we attempt to apply today.

Appendix 1 – List of seminar participants

Name	Title	Organisation/WHS
Dave Allenby	Head of Planning and Development	Harrogate Borough Council
Susan Bain	Western Isles Manager, St Kilda	National Trust for Scotland
Ian Barnes	Head of Archaeology	National Trust
Deborah Boden	Cornish Mining World Heritage Site Coordinator	
Chris Bolton	Head of Landscape and Geodiversity	Natural England
Max Bryant	General Manager - North Coast, Giant's Causeway	NT
Jessie Buchanan	PhD Student	University of Bath
David Bullock	Head of Nature Conservation	NT
Tony Crouch	City of Bath World Heritage Site Manager	
Chris Fowler	General Manager, Fountains Abbey & Studley Royal WHS	NT
Marcus Gilleard	Senior International Affairs Officer	NT
Peter Goodchild	Committee Member	ICOMOS UK
Nicky Grace	Yorkshire and the North East Regional Assistant Director of Operations	NT
Elinor Gwynn	Head of the Landscapes and People Group	Natural Resources Wales
John Hodgson	Senior Archaeology and Heritage Advisor	Lake District National Park Authority
Vince Holyoak	Head of National Rural & Environmental Advice	English Heritage
Vicky Hunns	Senior Specialist - Historic Environment	Natural England
Danny Jackson	Countryside and Rights of Way Manager	Saltaire WHS, Bradford City Council
Jonathan Larwood	Senior Specialist – Geology	Natural England
Catherine Leonard	Head of the International National Trusts Organisation Secretariat (INTO)	
Alice Lyall	Heart of Neolithic Orkney World Heritage Site Co ordinator	Historic Scotland
Kerstin Manz	Programme Specialist	UNESCO World Heritage Centre
Nigel Mills	Director of World Heritage and Access, Hadrian's Wall Trust	Hadrian's Wall Trust
Sarah Parkinson	Fountains & Studley, WHS Co-ordinator	NT
Adrian Phillips	Former NT Trustee, Member of NT South West Regional Advisory Board; former chair of WCPA	
Andrew Poad	Property Manager, Hadrian's Wall	NT
Dave Pritchard	Arts and Environment Consultant	
Simon Pryor	Natural Environment Director	NT
Michael Ridsdale	Head of Landscape, Fountains Abbey and Studley Royal	NT
John Rogers	Learning Coordinator at Derwent Valley Mills WHS	Derbyshire County Council
Sam Rose	Jurassic Coast World Heritage Site Manager	
Roger Shelley	Director	Creswell Heritage Trust
Sarah Simmonds	Avebury WHS Officer	Wiltshire Council
Jim Smyllie	Executive Director	Natural England
Mick Stanley	Mayor of Ripon	Mayor of Ripon
Beth Thomas	Stonehenge WHS Coordinator	English Heritage
Helen Thornton	Saltaire WHS Officer	Bradford City Council
Deborah Wall	Regional Principal Local Engagement Advisor, York	English Heritage
Carol Westrik	Heritage Consultant	Westrik Consultancy
Eric Wilton	Countryside Manager, Hadrian's Wall	NT
Anna Woodham	Programme Lead for new MA in World Heritage Studies	Ironbridge International Institute for Cultural Heritage
Christopher Young	Former Head of International Advice	English Heritage

Appendix 2 – Definitions

Definitions of cultural heritage and natural heritage as adopted by the World Heritage Convention, 1972 whc.unesco.org/en/conventiontext/

Cultural heritage

Article 1

For the purposes of this Convention, the following shall be considered as "cultural heritage":

monuments: architectural works, works of monumental sculpture and painting, elements or structures of an archaeological nature, inscriptions, cave dwellings and combinations of features, which are of outstanding universal value from the point of view of history, art or science;

groups of buildings: groups of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape, are of outstanding universal value from the point of view of history, art or science;

sites: works of man or the combined works of nature and man, and areas including archaeological sites which are of outstanding universal value from the historical, aesthetic, ethnological or anthropological point of view.

Natural heritage

Article 2

For the purposes of this Convention, the following shall be considered as "natural heritage":

natural features consisting of physical and biological formations or groups of such formations, which are of outstanding universal value from the aesthetic or scientific point of view;

geological and physiographical formations and precisely delineated areas which constitute the habitat of threatened species of animals and plants of outstanding universal value from the point of view of science or conservation;

natural sites or precisely delineated natural areas of outstanding universal value from the point of view of science, conservation or natural beauty.

Selection criteria for inclusion on the World Heritage List

http://whc.unesco.org/en/criteria

i. to represent a masterpiece of human creative genius;
ii. to exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design;
iii. to bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared;
iv. to be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history;
v. to be an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change;
vi. to be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance. (The Committee considers that this criterion should preferably be used in conjunction with other criteria);
vii. to contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance;
viii. to be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features;
ix. to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals;
x. to contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

Cultural Landscapes

From: http://whc.unesco.org/en/culturallandscape/

In 1992 the World Heritage Convention became the first international legal instrument to recognise and protect cultural landscapes. The Committee at its 16th session adopted guidelines concerning their inclusion in the World Heritage List.

The Committee acknowledged that cultural landscapes represent the "*combined works of nature and of man*" designated in Article 1 of the Convention. They are illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal.

The term "cultural landscape" embraces a diversity of manifestations of the interaction between humankind and its natural environment. Cultural landscapes often reflect specific techniques of sustainable land-use, considering the characteristics and limits of the natural environment they are established in, and a specific spiritual relation to nature. Protection of cultural landscapes can contribute to modern techniques of sustainable land-use and can maintain or enhance natural values in the landscape. The continued existence of traditional forms of land-use supports biological diversity in many regions of the world. The protection of traditional cultural landscapes is therefore helpful in maintaining biological diversity.

Categories and Subcategories

Cultural landscapes fall into **three main categories (Operational Guidelines 2008, Annex3**), namely:
The most easily identifiable is the **clearly defined landscape designed and created intentionally by man**. This embraces garden and parkland landscapes constructed for aesthetic reasons which are often (but not always) associated with religious or other monumental buildings and ensembles.

The second category is the **organically evolved landscape**. This results from an initial social, economic, administrative, and/or religious imperative and has developed its present form by association with and in response to its natural environment. Such landscapes reflect that process of evolution in their form and component features.

They fall into two sub-categories:

- a relict (or fossil) landscape is one in which an evolutionary process came to an end at some time in the past, either abruptly or over a period. Its significant distinguishing features are, however, still visible in material form.
- continuing landscape is one which retains an active social role in contemporary society closely associated with the traditional way of life, and in which the evolutionary process is still in progress. At the same time it exhibits significant material evidence of its evolution over time.

The final category is the **associative cultural landscape**. The inclusion of such landscapes on the World Heritage List is justifiable by virtue of the powerful religious, artistic or cultural associations of the natural element rather than material cultural evidence, which may be insignificant or even absent.

In the UK there are five World Heritage Sites recognised as cultural landscapes: St Kilda; Blaenavon Industrial Landscape; Royal Botanic Gardens, Kew; Cornwall and West Devon Mining Landscape; and the English Lake District.

Acknowledgements
Many people and organisations have enabled this research and report. Natural England has provided continued support and facilitation throughout. The National Trust at Fountains Abbey hosted and provided the facilities for the 2014 meeting and further local support was provided by Chris Fowler, General Manager at Fountains, and Josie Campbell who provided transcripts of presentations and discussion. We had the pleasure to be joined by the Mayor of Ripon and the Ripon Hornblower at the evening event. We are particular grateful to the IUCN National Committee UK for providing a publishing route for the report, and funding for this from both the National Trust and WWF, and World Heritage UK for supporting the launch of the report at its annual meeting at Ironbridge Gorge World Heritage Site. Lastly, it has only been with the support (and patience) of all the participants and contributors that 'Culturally natural or naturally cultural?' has been possible.

IUCN National Committee UK

Grosvenor Villa, Village Road
Rhosesmor, Mold
Flintshire CH7 6PJ
UK

chris.mahon@iucn.org.uk
www.iucnuk.wordpress.com