

Arts & Humanities Perspectives on Cultural Ecosystem Services (CES)

ARTS & HUMANITIES WORKING GROUP (AHWG): FINAL REPORT

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A tree that gives back: Michigan Avenue, Chicago, May 2011 (Photo: Peter Coates)

I often say that when you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind (William Thomson [Lord Kelvin], 1883)

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1. Introduction and report structure

'Every tree counts' is a week-long annual initiative of Chicago's Morton Arboretum (since 2010) that culminates on Arbor Day (27 April), an annual tree planting celebration initiated in 1872 in largely tree-less Nebraska by Julius Sterling Morton, the father of the Arboretum's founder. Each year, volunteers tag more than 1,500 trees within the downtown area (and many more in the suburbs). The yearly environmental benefit of each tagged tree is calculated and assigned in dollars according to data on tree type, age, size and location. These data are then entered into the National Tree Benefit Calculator, a computer model that represents the outcome of twenty-five years of research by the US Forest Service and partners. The Morton Arboretum reckons that for every dollar invested annually in tree care (planting, mulching, pruning and watering) each tree gives back \$2.7 in benefits. These include shade for homes and workplaces; reduction of energy expenditure on cooling in summer; removal from the air of the greenhouse gas, carbon dioxide, and its storage in the woody mass; capture of rainfall that would otherwise flood storm water systems; and (not least) property value enhancement: each large tree in a front yard increases a home's sale price by 1%. As the Arboretum's vice president for conservation and science, Nicole Cavender, explained in April 2012, 'it's not just that they're pretty, [they're] also very valuable' (CBS Chicago, 2012; Morton Arboretum, 2012).

Though Cavender argues that the value and benefits of trees extend far beyond the realm of aesthetics – and perhaps implies that beauty is not a real value (or really valuable) – she has identified a key element within the fourth of the four categories into which individual ecosystem benefits and services are conventionally grouped: the category of cultural services, which takes its place alongside provisioning, regulating and supporting services in assessments at global and national levels.

This is the report of a specially convened working group (AHWG) on how arts and humanities (AH) perspectives can contribute to deeper and broader discussions of cultural ecosystem services (CES), which are part of a wider discourse on ecosystem services (ES) initiated by ecologists and economists. This working group consisted of scholars from across the broad and varied topography of AH scholarship, which, as the Arts and Humanities Research Council (AHRC) explains on its website, 'covers an immense range of subjects: ancient history, modern dance, archaeology, digital content, philosophy, English literature, design, the creative and performing arts, and much more'. AHRC also emphasizes that 'these subjects encompass all aspects of our lives - our experiences, identities, languages, histories, values - in fact, all those things that make us what we are. And they all play a vital role both in maintaining and improving our quality of life and the well-being of our economy'. The working group's university-based researchers were supplemented by figures representing major national bodies, statutory and non-statutory, with responsibility for environmental management. AHRC was also represented. (See Appendix 1 for membership list.)

The context for this particular assignment is the UK's National Ecosystem Assessment, a two-year project (2009-11) that delivered a mass of insight into and data on the current condition, values and potential futures of the nation's terrestrial, freshwater and marine ecosystems (UK NEA, 2011). At the same time, this exercise identified a number of important unresolved issues and areas ('uncertainties'). A two-year follow-on phase (2011-13) was instigated 'to develop an improved evidence base to implement the ecosystem services paradigm within the ecosystems approach, and thereby facilitate more informed decision-making' (UK NEAFO, 2011). A central component of UK NEAFO is closer scrutiny of CES and this AHWG report is intended to further that objective.

Originally commissioned by AHRC as a stand-alone assignment, this Working Group report has since become more closely aligned with the reports of UK NEAFO work packages (WP) on the findings of further research into Cultural Values (WP5) and Plural and Shared Values (WP6). Not only have WP5 and WP6 explored some of the same territory as this AHWG; they have done so with an increasing awareness of its activities: section six of WP5's report ('Participatory and interpretative approaches to cultural ecosystem services') incorporates material on AH perspectives, methodologies and research activities that are central to this working group's deliberations, highlighting, as well, the potential future contribution of participatory/creative mapping (Church *et al.* 2014). In addition, UK NEAFO's Synthesis Report also recognizes the value of the approach to the understanding of cultural benefits associated with 'ecosystem attributes' embodied in the National Trust's 'Statement of Significance' and 'Spirit of Place' initiatives (UK NEAFO, 2014).

This final report incorporates two rounds of written comments from working group members: firstly, after an initial draft that was pre-circulated in December 2012 and discussed at a two-day meeting in January 2013; and secondly, in response to a re-circulated revised version. This report is also informed by the lead author's participation in various meetings at which ecosystem services and/or the environmental humanities were discussed (see Appendix 2). Feedback received as part of the external review process for all UK NEAFO documents is also included.

Building on the chapters of UK NEA's report that addressed 'Cultural Services' and 'Shared Values' (16 and 24 respectively), AHWG's purpose was to identify how AH can play a material role in refining, adapting, developing and implementing the cultural services dimension of ES. An additional aim has been to lay the groundwork for a distinctive AH perspective on environmental research, broadly defined, that we might refer to as an 'environmental humanities' approach. In this sense, AHWG's deliberations have constituted a capacity building exercise.

This report is grounded in four premises that also informed UK NEA: that culture and nature are largely inseparable; that cultural benefits of ecosystems are no less tangible and material than other types of benefit; that a broad range of perspective, methods and tools are required to access and appreciate the full range of CES; and that it is hard to overstate the importance of context – spatial, temporal and socio-cultural - in the shaping and articulation of values.

What is meant by culture (obviously) is not the Victorian notion of spiritual and moral progress through contact with 'the best that has been thought and said [and created]'. The term is used in the anthropological sense of shared modes of believing and doing ('way of life'). Another vital distinction, of course, is between culture and 'the arts'. This is the sense in which it is asserted (the first premise) that no ecosystem exists outside history and culture. Though ecosystems and other natural entities possess their own agency, autonomy and dynamics, more or less every ecosystem has been impacted by human activities and plays a role in the practices and representations of human societies. They could therefore be considered *socio-ecological* systems: 'the product of continuous interaction between people and their environment over millennia' (UK NEA, 2011). As William Cronon explained, with reference to Lake Superior's Apostle Islands, which abound with wild features as well as evidence of multiple human interventions: 'Nature alone cannot explain...landscape' (Cronon, 2003: 39).

Distinctions between the historic environment and the natural environment, and between built heritage and natural heritage, remain commonplace in official reports and academic discourse alike. In many respects, though, the entire landscape of the British Isles constitutes an historic and built environment. Moreover, for purposes of Landscape Characterization, all environments are historic, and the historic environment includes natural (ecosystem/biodiversity) attributes as well as cultural features (Fairclough, 1994; Fairclough *et al.* 2002).

Given that ecosystems, environmental settings, environmental spaces, cultural spaces and natural places – as they are variously referred to (Church *et al.* 2014; UK NEAFO, Synthesis Report) - represent a combination of biological/physical elements and human inputs, ‘culture-nature services’, as Rob Fish suggests, might be a more appropriate term for the benefits they provide (Fish, 2011: 675).

That CES arise from the present character, perception and uses of environmental settings, which result from the action and interaction of human and other-than-human (natural) agents over time, indicates that environmental settings shaped by human intervention have been enriched as well as impoverished: human input can add to as well as detract from value. Though this input does not cancel out or compensate for our more destructive interventions, it is important to remember that certain environmental settings that people value owe their distinctive character and appeal to human roles. The product of centuries of grazing might be a wildflower-rich grassland attractive to butterflies that offers greater biodiversity than a less intensively managed environmental setting. The reality of the human relationship with the rest of nature is not as dualistic as the ES framework implies: there is also a sense in which humans provide services to nature.

The second underlying assumption of this report is that the cultural benefits of ecosystems, though habitually described as ‘intangible’, ‘non-use’ and ‘non-monetary’, are just as tangible as the other three categories of provisioning, regulating and supporting services, and no less material than water and timber. Rather than constituting a fourth (or ‘fluffy’ category), let alone languishing on the margins, culture is also a core feature of many provisioning, regulating and supporting services. How we provision ourselves with food and what we eat, for instance, are eminently cultural matters: UK NEA noted that provisioning services are ‘closely linked’ to cultural services (UK NEA, 2011). Consumption of horsemeat, anathema to the majority of Britons, is the norm for many other Europeans, north and south of the Alps; and the current vogue in Britain for foraging wild foodstuffs and the lionizing of locally produced foods are also eminently cultural phenomena. We might even go so far as to say that the ‘traditional’ seaside holiday meal of fish and chips, consumed while sat on a pier, promenade or beach, is a prime example of a cultural ecosystem service delivered in a coastal environmental setting that enhances the flavour. Consignment of ‘the cultural’ to a separate or peripheral category misrepresents the all-pervasiveness of culture, which informs and suffuses the everyday.¹ Every concept is the product of a particular cultural orientation, including the notion of ecosystem services.

This report’s third basic premise is that the values and benefits embedded in CES are most effectively accessed through the widest possible range of methods that yield evidence both quantitative and qualitative in nature. Research methodologies primarily associated with the social sciences include: questionnaire and survey (including on-line, telephone and postal/paper); face-to-face interview (structured and semi-structured); and content and discourse analysis of written materials. Yet the acquisition of ‘better’ evidence for the existence of values through these non-deliberative (stated preference) methods does not, in itself, help resolve clashes between competing values, whether between cultural and other values or between different types of cultural values. Attitudes to rhododendrons and grey squirrels provide instructive examples. In terms of native

¹ The achievement of a better understanding of the role of culture was also the objective of a recent initiative of the European Cooperation in Science and Technology (COST). The aim of Action IS 1007 (Investigating Cultural Sustainability; 2010-14) was ‘to conceptualise and mobilize the cultural dimension of sustainable development’. This action addressed the neglect of the role of culture within the political framework of Sustainable Development, which, at best, had subsumed the ‘cultural’ under the ‘social’ (COST, 2010: 2-4).

species diversity, the former is undesirable in many habitats. Yet many people find this so-called invasive species aesthetically attractive. And others value their blossoms as a source of dye for artworks. Some people enjoy seeing grey squirrels, whereas others in Britain believe that the only good squirrel is a red squirrel, and often for cultural reasons as well as for biodiversity's sake (Coates, 2012).

What non-deliberative survey methods measure is the strength of a pre-formed (and individual) preference, with less (if any) attention to the reasons for that preference or to the existence of collective values. Deliberative and participative methods, such as group conversation, focus groups, workshops and 'creativity session' (sometimes an iterative series), can help overcome these limitations. For ecological economists (as distinct from environmental economists), valuation exercises are also exercises in value articulation, and deliberative methods can capture the entanglement of economic and cultural values, providing a forum for the articulation of hitherto unarticulated or latent cultural values of nature. These deliberative methods also foster learning about different individual, group and communal perspectives by providing the opportunity for an exchange of views, evaluation of evidence and contemplation of matters of mutual interest and concern. In addition, the deliberative process can provide a means for working to resolve value clashes through negotiation and persuasion (social learning). These dialogue- and process-based methods elicit greater insight into why people care and what they care for/value, as distinct from 'how much' they care for/value something (Kenter, Hyde and Fazey, 2011).

Cultural values are also clearly articulated - and arguably exercise their greatest authority - through a broad range of (non-deliberative and non-conversational) media and genres associated primarily with arts and humanities perspectives, such as written texts, storytelling (including oral history), mapping, performance and visual forms such as film, artwork and photography. A number of these cultural forms will be discussed in connection with various recent UK projects that, though not consciously or explicitly conceived or pursued within an ES framework, nonetheless demonstrate shared research interests.

This report's fourth premise is that context is paramount. Research that seeks to generalize and systematize knowledge about human relationships with ecosystems and environmental settings only gets us so far. Research conducted for UK NEAFO into values that are shared, social and plural highlights their 'context-specific nature', their status as 'outcomes of local circumstances, of specific times and particular places' and the 'spatially explicit' character of ecosystem services and benefits that are rooted in specific environmental settings: cultural spaces (places localities and landscapes in which people interact with the natural environment and each other) host cultural practices (expressive, symbolic and interpretative interactions between people and natural environments) that yield cultural benefits (dimensions of human wellbeing that have come to be associated with these interactions between people and the natural environment) (Fish and Church, 2013). Two of the four case studies entailing new empirical research conducted as part of WP6 were local case studies (the inner estuarine stretch of the Firth of Forth [Inner Forth] and inshore fisheries at Hastings, Sussex) that centred on place-based service provision and benefits (UK NEAFO WP6 Report, Section 4).

Arts and humanities approaches confirm that cultural meanings, whether individual or shared/plural, reside primarily in specificity - the fine-grained, time-sensitive texture of the relations of particular people with particular places at particular times and for particular reasons. Though some values are over-arching as well as more strictly contextual, values identified as 'transcendental' (or 'deeper') are frequently place-bound, anchored in, rendered explicit and reinforced by particular places (also noted in WP6 Report: 87). AH perspectives are grounded in the ambiguity, variety, irreducible difference, contingency, unpredictability and incertitude of human

experience and values, and highlighting their role is a strength rather than a weakness. Paying attention to these qualities improves rather than impedes understandings of the values and benefits attached to ecosystems and environmental settings.

Another preliminary observation is that we need to unearth the assumptions buried in the language of ecosystem assessment, not least the terminology of 'environment', 'ecosystem' and 'environmental setting' on the one hand, and of 'landscape', 'nature' and 'place' on the other. Objectivity and a 'scientific' character are frequently imputed and attached to the first set of concepts and subjectivity to the latter cluster, especially within the increasingly powerful conceptual framework of 'ecosystems-as-economic-commodity'. Insofar as 'landscape' derives from *landschap*, a term that Dutch and Flemish painters applied to rural scenery in the sixteenth century, and 'a landscape' can denote a painting itself, the term is indeed steeped in subjectivity and preference. For others, though – especially current researchers – landscape has become a far less narrowly visual and painterly notion. 'Nature' is an even more complex and ambiguous notion than landscape, particularly since many of its meanings are divorced from materially grounded and bounded places – as when the term is juxtaposed with culture. For Ursula Heise, the terminological shift from 'nature' to 'environment' over recent decades is partly explained by growing doubts about the validity of the time-honoured distinction between culture and nature, and increasing uncertainty as to where and how to delineate between these often crude and unhelpful binary terms (Heise, 1997). What is clear is that there is never an ecosystem or environment without landscape, nature and place. UK NEA recognized that the 'vast majority of people at present' is more familiar and comfortable with the traditional terminology of *nature*, *place* and *landscape*, which carry far greater cultural (and certainly more emotional and spiritual) authority than *ecosystem*, and *ecosystem services* - terms that UK NEA characterizes as unfamiliar and even baffling, just as Defra had noted that they were often 'off-putting', confusing and cloaked in 'inappropriate associations' in an earlier report on public awareness and understanding of the terminology of ecosystem services (UK NEA, 2011; Defra, 2007: 2; see also Wild and McCarthy, 2010).

It should also be appreciated that, though the language of ES is relatively new, attempts to express value in monetary and non-monetary terms are not a recent innovation. An early contribution to these discussions was an article on Stonehenge (1902) by Robert Hunter, one of the National Trust's co-founders. At the time, the monument was privately owned, in need of active conservation and management, and at the centre of a debate between those who regarded monuments as being solely of academic or scientific value, and those who approached their value more in terms of public access and enjoyment. To render Stonehenge more accessible through public ownership, a sum to compensate the owner had to be agreed. To establish its monetary value, Hunter applied a form of what is now known as hedonic valuation (based on the idea that the market price of a property relates to a bundle of characteristics, which may include non-market cultural factors such as whether or not the property is listed or located within a conservation area), using market data to impute the stones' value. The landlord had offered to sell the down land site for £125,000, with the stones but without grazing and sporting rights. Hunter observed that, since down land has no value other than for grazing or sport, the market valuation of the stones was therefore precisely £125,000 (Hunter, 1902; Cowell, 2013).

The difficulties of measuring cultural values are not unique to ES discourse and research. Efforts to measure CES were preceded by attempts to quantify and monetarize the value of 'culture' and cultural heritage (O'Brien, 2010; Throsby, 2001, 2006; Hutter and Throsby, 2008). Prior to the spending cuts of the 1980s and the new emphasis on 'impact' beyond the cultural sphere, the value of culture – culture, defined, for valuation purposes, as the human-created world of the arts,

whether that value resides in objects, experience or institutions – was also traditionally conveyed in terms of values that were intrinsic and intangible rather than instrumental and tangible.

The role of this specially convened AHWG is not to chime in with the already loud chorus of voices (which includes those of many UK NEA researchers) that emphasizes the awkwardness of the fit between cultural values and the conventional tools of ES research. AH researchers cannot afford to abandon the field to scholars who are more at ease and conversant with ES assumptions, language and objectives. To revel in (and retreat into) the immeasurability of CES values would be to marginalize and effectively disenfranchise ourselves in ES discussions, increasingly the risk that CES are undervalued and underpriced relative to the other forms of ES. Arts and humanities scholars should participate not in spite of but precisely because our natural tendency is to increase the number of questions and reduce the number of answers. One of the most productive roles we can assume is to involve ourselves in the research and development phase of operating procedures more appropriate to AH perspectives, modes of expression and communication than some of those that currently feature in ES research.

Instead of rejecting the ES approach outright, or persisting with the production of rarefied research that fails to engage with current environmental concerns, AH researchers can help mitigate the oversimplifications that stem from reliance on the comfort and predictability of a single operational mode in constructive ways. Moreover, the moment is right for AH intervention. This conducive climate has been fostered by two incidents involving trees: the proposed privatisation of England's public forest estate (2010-12) and the affliction of ash trees by fungal disease (*Chalara fraxinea*).

The consultation process regarding the proposed forest estate privatisation provides UK NEAFO WP6 with an example of the conceptualization, application and recognition of shared, social, cultural and plural values that usually lie dormant but were rendered explicit by this catalyst (conflict) point (WP6 Report: 57-58). The final report of the Independent Panel on Forestry (July 2012) on the proposed forests privatisation not only confirmed the depth of the UK public's cultural and emotional investment in trees, woodland and forest. It also highlighted the importance of nurturing a 'new woodland culture' (Independent Panel on Forestry, 2012).

Moreover, assessments of the potential impact of 'ash dieback' (a threat since October 2012) covered 'social' impacts and impact on 'landscape values' as well as economic and ecological consequences (Worrell, 2013: 40-43), and the National Trust's ancient tree advisor discussed its potential impact on 'cultural trees' (Muelaner, 2013). Also, though generally hesitant to discuss cultural dimensions of natural capital (a concept to be discussed in due course), the Natural Capital Committee's report (2012) tentatively noted, with reference to 'ash dieback' and the loss of associated benefits, that, 'in addition, as an indigenous and focal tree species, it is likely that people may attach value to the existence of ash trees' (NCC, 2012: 30). In the wake of these events and reports, a space has opened up for those with expertise on matters cultural.

It is by now almost universally accepted that, in climate scientist Mike Hulme's words, 'nature and culture are deeply entangled, and researchers must examine how each is shaping the other'. Hulme also points out, though, that 'they are largely failing to do so'. Referring to the disciplinary source materials drawn on by three working groups that contributed to the third assessment report of the Intergovernmental Panel on Climate Change (the leading international body for the assessment of climate change, established in 1988 by the United Nations Environment Programme [UNEP] and the World Meteorological Organization), Hulme noted that 'literature from the humanities was virtually absent' (Hulme, 2011: 177).

To tackle this lack of communication between those who study 'nature' and those who study 'culture', it is not enough to restate and promote beyond the AH sphere of operations those modes of inquiry its researchers are comfortable with and that generate qualitative data produced by often long and slow accumulative processes (rumination generates illumination). Given that researchers within the AH domain often prioritize the role of outsider, a concern with what they consider timeless rather than timely issues, and an opposition to the 'instrumentalization' and 'operationalization' of knowledge, it is equally a question of persuading them that the more-than/other-than-human and the wider biophysical context for human life and culture merit greater attention than they have given them to date. Those who have traditionally attended exclusively to the strictly human dimensions of the human experience may also need to be convinced that they have something valuable to contribute to debates about the future of our planetary home. They may also require reassurance that, if they do pitch in, they will not always be playing second fiddle to scientists, whether natural or social.

This report encompasses existing and potential contributions of work in various AH subject areas (as distinct from disciplinary fields) to the filling of 'knowledge gaps' in our understanding of CES. It also pays due regard to the substantial body of policy-relevant literature and the evidence already available of hands-on, intellectual-cum-practical collaboration between AH researchers and those who plan for and manage the environmental settings that deliver CES. It then considers what the constituent parts of AH can achieve as a collective entity under the newly unfurled banner of the environmental humanities. First, though, for the benefit of those unfamiliar with the world of ecosystem assessment and ecosystem services, some background and context for ES discourse and activity is necessary. Also desirable is some attention to attempts to date to factor in cultural values and benefits, and the methodologies they have employed.

2. Ecosystem Services (ES): Background and Context

The ES concept has become underpinned by the notion of natural capital, which refers to the variety of structures, processes and substances that make up the natural world (O'Connor, 2000). For proponents of this notion, the recognition of natural capital and its inclusion alongside the three existing forms of capital (human, financial/manufactured and social) is an essential first step in reversing the trend of depletion and depreciation (running down) of the stock of the planet's natural (non-human) assets. The case for factoring natural capital into national accounting exercises is advanced in particular by the Natural Capital Committee (NCC), an independent body established in May 2012 as one of the outcomes of the White Paper on the Natural Environment of 2011, which embodied the ecosystem services approach as a tool for enhancing awareness and appreciation of nature's value and services (Defra, 2011). The remit of the NCC, which reports to the Cabinet Office's Economic Affairs Committee, is to advise government on the efficient and sustainable management of England's 'natural wealth' (Natural Capital Committee, 2013).

This natural capital 'pays' for biophysical functions (stock flows) that provide outcomes (services) which deliver benefits and goods. In other words, nature pays dividends and so, to ensure that the value of these dividends does not decline, investment in stocks of natural capital must be maintained. An environmental economist explains how this works with regard to CES. The function of 'cultural and artistic information', delivered through variety in natural features (ecosystem processes and components) that possess cultural and artistic value, produces 'use of nature as motive in books, film, painting, folklore, national symbols, architecture, advertising, etc.' (De Groot, 2002).

'Ecosystem services' (also referred to, if less influentially, as 'natural services' [Juniper, 2013]) is a phrase that first appeared in the early 1980s (Ehrlich and Mooney, 1983; Gómez-Baggethun *et al.* 2010). Since the 1970s, greater emphasis, academic, popular and political, had been placed on societal dependence on natural systems, and the importance of biodiversity. However, the specific notion of ecosystem services was introduced by Ehrlich and Ehrlich in their 1981 study, *Extinction: The Causes and Consequences of the Disappearance of Species*. It was widely embraced by ecologists and environmental economists in the early 1990s to promote societal and political awareness of the ecologically unsustainable character of current modes of economic expansion and the dependence of economic well-being on ecological health. In lay terms, this is an attempt to improve understanding of the astonishingly large number of important things that nature does for us (Juniper, 2013).

The ES perspective rose up the research agenda through its uptake by various international bodies – notably the United Nations Environment Programme's 1993 Convention on Biological Diversity (UNEP-CBD; opened for signature at the Rio 'Earth Summit' in June 1992); and UNEP's subsequent biodiversity programmes). Though it has retained a close connection with issues of biodiversity (Perrings, Folke and Mäler, 1992; Heywood and Watson, 1995; Secretariat of the Convention on Biological Diversity, 2010) – not least through the establishment (2012) of an independent international body open to all United Nations member countries, the Inter-Governmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) - a focus on the economic potential of an ES approach launched it into the mainstream.

The ES era effectively began in 1997, when a team of scholars led by Robert Costanza reported on efforts to impose a monetary value on ES. published in *Nature*, The findings of this exercise in environmental economics (not to be confused with ecological economics, which treats the economy as a sub-system of the ecosystem, emphasizing the paramount importance of natural capital, which ecological economists regard as irreplaceable/non-substitutable by human capital [Turner, 1999; van

den Bergh, 2001; Gómez-Baggethun, 2010]) attracted enormous attention. The radicalism of the approach (which constituted a clear departure from the conventional terms of neoclassical economics) and the novelty of the undertaking - which identified seventeen individual services provided by sixteen distinct types of ecosystem (biome) - secured widespread publicity. The staggering scale of the enterprise was another major talking point: Costanza's team hazarded a range estimate of the collective annual value of the entire global package of ES: between US \$16 and 54 trillion, with a minimum estimated average of US \$33 trillion per annum (Costanza, 1997: 253, 259).

Ecosystem services truly came of age in 2000, when it was adopted as a basic conceptual tool by the Millennium Ecosystem Assessment (MA). This massive, five-year, United Nations-directed activity mobilized an army of 1,400 scientists to survey the current condition of the planet's biophysical systems and the myriad threats they faced. MA's report (2005) noted that human activity is consuming 'natural capital' at a frightening rate and 'putting such strain on the natural functions of Earth that the ability of the planet's ecosystems to sustain future generations can no longer be taken for granted' (MA, 2005). Nature, in short, should no longer be expected to work for us for free. And the cost of looking after the environment is now much lower than the cost of not looking after it (Natural England, 2009a).

Following MA's report, the ES approach quickly became widely accepted internationally by environmental scientists, social scientists and policymakers. Large combined forces of natural and social scientists as well as planners have hitched their wagons to ES approaches to environmental research and management. Efforts to devise a classification system more fit for valuation purposes have produced a classification system that distinguishes between basic ecosystem processes/function/structure/components (intermediate services) and the goods and benefits derived from their consumption and utilization (final services). Hence, ES are 'the aspects of ecosystems utilized (actively or passively) to produce human well-being' (Fisher, Turner and Morling, 2009: 645; Boyd and Banzhaf, 2007). Developed to avoid 'double-counting' errors in future valuation exercises (by restricting valuation to what is directly consumed or used by a beneficiary, as the value of the structures and processes that contribute to the service are already included in the estimate), this approach was adopted by the UK's National Ecosystem Assessment through its 'Ecosystem Services Framework' (Haines-Young and Potschin, 2009: 15, 81, 82).

Another prominent example of ES research and activity post-MA is the Natural Capital Project (NCP) at Stanford University's Woods Institute for the Environment. Since its launch in 2007, this project (in partnership with the University of Minnesota, the Nature Conservancy and the World Wildlife Fund) has devised a set of computer-based models known as the Integrated Valuation of Environmental Services and Tradeoffs tool (InVEST). Initially applied to Oregon's Willamette Basin and the Amazon, the areas to which the software (freely downloadable) has since been applied include Belize, Canada, China, Columbia, Ecuador, Indonesia, Mexico and Sumatra (InVEST, 2013). NCP wants InVEST to serve as a systematic tool for governments, corporations and non-profits that is applicable generally and consistently to spatially-explicit natural resource use and conservation decisions anywhere in the world, with particular relevance to choosing between management options (mission: 'to align economic forces with conservation, by developing tools that make incorporating natural capital into decisions easy') (Daily, 2009: 22; *The Economist*, 2005).²

² InVEST exemplifies the 'top down' approach to ES modelling. Other, more 'bottom up' approaches within the Natural Capital Project aim to gather spatially explicit empirical data instead of depending on 'look up' tables.

One of the founders of ecological economics - and a leading critic of the ES approach and the premises of neoclassical natural resource economics - commented in 2010 that, within a decade, ES has been transformed from 'eye-opening metaphor' into a 'central framework for scientifically assessing ecosystem change' (Norgaard, 2010: 1219). Others feel that the concept of ES as whole has been commodified and appropriated by economic framing within a neoliberal economic and political context (Gómez-Baggethun and Pérez, 2011).

Many proponents were fully aware of the limitations of the ES approach. Ecosystem value, Costanza recognized, was fundamentally immeasurable insofar as 'the economies of the Earth would grind to a halt without the services of ecological life-support systems, so in one sense their total value to the economy is infinite' (Costanza, 1997: 253). (This immeasurability and infinity is why economists no longer try to establish total values of ecosystems, but confine themselves to valuing marginal changes in service provision [Kenter, 2013].) Yet Costanza's team was concerned that, without an attempt to properly cost ES, these services would not occupy the place they deserved in political and economic decision-making.

'Valuing the Arc', for example, employs the 'bottom up' approach to examine the biodiversity value of Tanzania's Eastern Arc Mountains: <http://naturalcapitalproject.org/where/tanzania.html>; Fisher, B., Turner, K., Burgess, N.D., et al., 'Measuring, Modelling and Mapping Ecosystem Services in the Eastern Arc Mountains of Tanzania', *Progress in Physical Geography* 35/5 (October 2011), 595-611.

3. Incorporating 'non-use' (but far from useless) values

The individual services (or 'goods') that MA identified were grouped into four categories: *supporting* services (including nutrient recycling, photosynthesis, pollination and soil formation); *regulating* services (such as climate regulation, carbon sequestration, water purification, groundwater recharge and flood protection); *provisioning* services (notably supplies of food, drinking water, fibre and timber); and *cultural services*. This fourth category embraced 'the non-material benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation and aesthetic experiences'. MA also referred to ES values associated with cultural identity, sense of place (belonging), heritage and creative inspiration (MA, Synthesis, 2005: 8, 53, 40). Publishing that same year, de Groot and Ramakrishnan (2005) divided CES into six sub-categories: cultural identity; heritage values; spiritual/sacred values; inspiration; aesthetic; and recreation and tourism.

A Europe-wide assessment of ecosystem services provision conducted by the European Union adopted a similar typology and approach, listing the following elements under the category of cultural services: aesthetic information; opportunities for recreation and tourism; inspiration for culture, art and design; spiritual experience; and information for cognitive development (Maes, Paracchini and Zulian, 2011: 7, 13, 44). A recent working definition of CES is 'ecosystems' contributions to the non-material benefits (e.g. capabilities and experiences) that arise from human-ecosystem relationships' (Chan, Satterfield and Goldstein, 2012: 12).

UK NEA also recognized the four categories of ES that informed MA and the European assessment. In the 'Synthesis of Key Findings', CES are identified in connection with cultural roots, sense of place, mental and spiritual well-being (health benefits), spiritual values, ethics, aesthetics and inspiration, recreation and tourism, cultural heritage, and education/knowledge production (UKNEA, 2011: 4, 7, 13-14, 17, 18, 25, 31, 33, 62, 70, 73, 76, 77). Cultural services, the 'Synthesis' explains, are:

Derived from environmental settings (places where humans interact with each other and with nature) that give rise to cultural goods and benefits. In addition to their natural features, such settings are imbued with the outcomes of interactions between societies, cultures, technologies and ecosystems over millennia. Such places provide opportunities for outdoor learning and many kinds of recreation; exposure to them can have benefits including aesthetic satisfaction, improvements in health and fitness, and an enhanced sense of spiritual well-being (UKNEA, 2011: Ch. 1, 5).

Though occupying the fourth (and final) category, CES are not, in principle, assigned a lower value than other forms of ES in ES research. On the contrary, MA recognized that CES are on a par with other services for many local communities, whether in developing countries or advanced industrial nations. MA also noted that 'the impact of the loss of cultural services...is especially important for many people' (MA, 2005: 9). At the same time, ES exponents acknowledge that CES, though undeniably significant and 'consistently recognized', are 'not yet adequately defined or integrated within the ES framework' (Daniel et al., 2012: 8812), not least due to what is often a strongly localistic scale and character. With regard to CES, MA 'struggled to find a consistent theoretical and methodological framework to match that underpinning other areas of the assessment'.

The basic problem researchers identified was the 'lack of evidence' for values and benefits often characterized as 'non-use', 'non-utility', 'non-monetary', 'essentially non-monetarisable' (UK NEA, Synthesis: 14), 'intangible and 'ill-fitting'. They were particularly concerned about the shortage of 'quantitative data' suitable for cost-benefit analyses – to 'underpin any assessment of cultural ecosystem services and goods'. In fact, one of the major challenges identified in the future research

agenda was 'how to develop a conceptual and/or methodological approach which allows the humanities and more interpretive social science disciplines to make their distinctive contributions to the assessment' (MA, Synthesis, 2005: 6, 8, 53). UK NEA reiterated that 'many key sources of social, economic and environmental data are not designed to examine key aspects of cultural services and goods' (UK NEA, Synthesis: 59).

4. CES research without (before) arts and humanities researchers

ES research of a 'more interpretive' 'social and cultural' nature has generally been regarded as the province of social science. As ecologist Gretchen Daily explained in 2009, 'the biophysical sciences are central to elucidating the link between actions and ecosystems, and that between ecosystems and services (biophysical models of "ecological production functions"). The social sciences are central to measuring the value of services to people ("economic and cultural models")'. This approach was echoed in the final report of the Valuing Nature Network (VNN). While identifying 'an improved understanding of what cultural services are and how they may be quantified' as a priority matter for VNN's future research agenda, the report's authors also noted that, to achieve this end, 'knowledge should be used from social scientists, who are accustomed to measuring how humans interact with their environment to enjoy and extract ecosystem services (Valuing Nature Network, 2013: 16-17).³

Subsuming cultural models within economic models, Daily regarded economic valuation methods as the main way forward. Nonetheless, she accepted that, in some instances - her example was the 'cultural importance of natural places' - 'service values may best be conveyed in other ways...because assigning credible monetary values is difficult or less meaningful'. Referring to Hawaii, she cited cultural considerations such as the availability of traditional plants for activities such as lei making and access to sites of spiritual significance. She, too, flagged up the need to develop 'non-monetary methods for valuing human health and security and cultural services, and to incorporate them into easy-to-use, easy-to-understand, but rigorous tools for valuing ecosystem services' (Daily, 2009: 23-26).

That CES are particularly 'difficult and contentious to value in monetary terms' is a point underscored by Kai Chan et al. (2012). Chan's team of social scientists - which singled out values associated with spirituality and heritage and the shaping of cultural identity and social cohesion - wants to improve the credibility of the ES approach among those who speak for things cultural: values of this kind, they assert, must be heeded to deflect the charge of 'cultural insensitivity' (Chan *et al.* 2012: 745-46). ES researchers such as Chan (despite their continued application of descriptive terms such as 'ill-fitting', 'non-use' and 'intangible' to these values) acknowledge that attempts to attach monetary value to the spiritual feeling that people derive from interacting with trees (for example) stretches far beyond what it can usefully accomplish a metaphor designed for matters such

³ The Valuing Nature Network (VNN, 2011-14), an additional current valuation exercise within the community of ES researchers (though without formal connection to NEA/NEAFO), is an interdisciplinary research capability-building exercise (Valuing Nature Network, 2014a). The first of the five 'key themes' VNN identified that restrict the 'uptake of value evidence by decision-makers' was 'a narrow view of values as economic, not incorporating shared social values and non-monetary well-being values' (VNN, 2013: 15). The forthcoming, five-year 'Valuing Nature' Programme - an initiative of the Natural Environmental Research Council [NERC] in conjunction with the Economic and Social Research Council [ESRC], AHRC and Biotechnology and Biological Sciences Research Council [BBSRC], and Defra (and part of the Living with Environmental Change [LWEC] Partnership) - will continue and extend VNN's work. The aim is to improve understanding and representation of the 'complexities of the natural environment in valuation analyses and to consider the wider societal and cultural value of ecosystem services' through research, networking and impact activities conducted by a 'genuinely interdisciplinary research community capable of working across the natural, social, and biological sciences, and the arts and humanities' (VNN, 2014b).

as valuation of the floodwater absorption function of intact wetlands by comparing it to the cost of building flood defences (Chan, Satterfield and Goldstein, 2012: 8-9).

Moreover, none of the twenty-two authors of an article entitled 'Contributions of cultural services to the ecosystem services agenda' brought an arts and humanities disciplinary background to the study.⁴ Nonetheless, the team acknowledged the existence of extensive bodies of work on landscape aesthetics and cultural heritage, referring to 'visual material representations of cultural activities on the landscape', such as rice paddies and vineyard terraces. They also made a point that, from an AH vantage point, is a basic tenet: 'over time, altered or even heavily managed ecosystems can acquire cultural significance'. England's pastoral countryside, the Alps and the orchard meadows of Central Europe are the examples cited (Daniel *et al.* 2012: 8814).⁵

One form of data that behavioural and social science researchers working on the cultural significance of ecosystems employ to evaluate nature's aesthetic qualities are 'qualitative measures' derived from perceptual surveys among 'statistically coherent groups' (Daniel, 2012: 8813). Research teams such as Chan's also arrive at their findings through 'deliberative methods'. By talking to people in the fishing communities of British Columbia, his University of British Columbia researchers substantiated the 'crucial importance of intangible benefits' (in this instance, the emotional attachment to coastal areas or the identity and sense of purpose and belonging that is derived from ownership of a boat and a license) and the 'implications for local ways of life' and the 'critical roles' that 'social, economic, and political arrangements play...in shaping the benefits that people experience from their interactions with ecosystems' (Chan, 2012: 745-6, 751).

A further example of how CES research to date has largely proceeded without input from AH approaches is Natural England's 2009 exercise in 'qualitative social research', whose major objective was to contribute to the agency's updating of England's National Character Areas (NCA) by establishing the degree of correlation between CES and particular landscape characteristics.⁶ This undertaking ('Experiencing landscapes: capturing the cultural services and experiential qualities of landscape') deployed focus groups, 'extended creativity sessions' and one-on-one interviews. The groups and sessions (supplemented by sixteen in-depth interviews with individuals) were convened to represent a wide spectrum of age, gender and socio-economic status, and encompassed residents as well as visitors (Natural England, 2009).

⁴ The Ecosystem Services Partnership, an international network of researchers (currently consisting of more than 50 organizational and over 200 individual members) devoted to the better understanding and practical application of ecosystem services in planning, management and decision-making, maintains various Thematic Working Groups. One of these working groups is devoted to Cultural Services and Values, which aims to provide a forum for examining the philosophical and methodological questions raised by CES research, 'to encourage the integration of psychological, sociological, ecological and geographical approaches', and to 'identify generalizable versus specific elements of CES generation to support the cross-comparability of studies', <http://www.es-partnership.org/esp/79958/5/0/50>

⁵ Important recent work on landscape as heritage (which foregrounds the argument that local, everyday and 'minor' place-based heritage is no less significant than the more distant and 'special' heritage represented by national parks and biosphere reserves) includes *Heritage and Beyond* (Strasbourg: Council of Europe, 2009), which examines the role of the Framework Convention on the Value of Cultural Heritage for Society (Faro Convention, 2005) (see, especially, the chapter by Graham Fairclough, 'Heritage! Object and action, product and process', 29-41).

⁶ England is divided into 159 NCAs, each defined by a 'unique combination of landscape, biodiversity, geodiversity and cultural and economic activity' and delineated by 'natural boundaries' rather than 'administrative boundaries'.

The exercise pinpointed eight 'quality of life' services that landscape delivered: a sense of history (or heritage); a sense of place (identity and home); inspiration and stimulus (spur to artistic activity; multi-sensory engagement); calm (relaxation and tranquillity); leisure and activities (recreation); spiritual enrichment; learning (or education); and, finally, escapism (getting away from it all). Regarding the first service, one of the main findings claimed was a deeper understanding of the 'sense of history' that derives as much from 'a sense of the perceived permanence of nature...reminding people of their insignificance and the place of mankind within nature' as from the traditional notion of a sense of the centuries-long influence of human activity on the shape and appearance of the landscape, and the awareness of continuity and connection to those who have been there before or viewed the same scene (Natural England, 2009: 4, 6, 8-9, 13, 29, 32-33).

The limitations of qualitative survey methodology were the starting point for a German project on a particular environmental setting that is a distinctive feature of rural central Europe: the orchard meadow. The project leaders list various drawbacks of the traditional CES method of qualitative interviews: lack of awareness on the part of interviewees of the existence of cultural values; the related inability to articulate or reflect on these values; and the absence of spatially explicit data. Their alternative approach is to record visible, in situ evidence of CES in their specific example of a landscape comprising meadows studded with fruit trees - (*Streuobstwiesen*), a characteristic feature of southwest Germany's Swabian Alb (UNESCO) Biosphere Reserve. The material evidence of CES logged within this study area consists of hiking trails and related signage, benches, recreational huts, subsistence gardens, hunting blinds, and memorials (not included were 'temporary signs of non-material uses' such as horse droppings from recreational riding activity). This method and the data it generates complement the findings yielded by methodologies such as one-on-one interviews, focus groups and literature reviews, representing 'an important component of a multi-faceted toolbox which is indispensable for assessment of CES' (Bielinger and Plieninger, 2012: 3, 7-8, 16).

As Hulme explained to a readership mostly consisting of natural and social scientists, AH disciplines are 'interpretative', their findings 'accumulative', and they enlighten through complexification (Hulme, 2011: 178). They promote a clearer understanding of the lack of clarity that surrounds most of the things that really matter to us. As emphasized by political economist John O'Neill, applied philosopher Alan Holland, and philosophy and public affairs specialist Andrew Light, a heightened ('proper') appreciation of the complexity and irreducibility of environmental values is the key to improved decision making (O'Neill, Holland and Light, 2008: 87). That nobody has figured out how to do justice to the importance of CES by wielding the conventional tools of cost-benefit analysis therefore comes as no surprise.

John Foster spoke for many when he emphasized that the notion of value 'eludes our definition grasp with a supple duplicity characteristic of the really important concepts in human experience' (Foster, 1997: 3, 7-9). As such, various scholars have questioned the fundamental principles of ES, arguing that it capitulates to a reductive worldview that cannot even begin to accommodate the host of so-called intangible, non-material and non-use values attached to environmental settings (and becomes a convenient catch-all term for everything inconvenient from the standpoint of neoclassical economic theory). In addition, conventional economic valuation does not take into account meanings that are shared and that reflect social structures – nor can they accommodate values whose meaning may be greater than the sum of individual parts. 'Advocates of the ecosystem services framework', notes Fish, 'face a steep climb in winning the hearts and minds of cultural theorists over to their world view, many of whom would be more likely to regard cultural ecosystem services as an object of critique, rather than a concept to be embraced' (Fish, 2011: 674).

The neat dichotomy between use and non-use values (like most neat dichotomies) readily breaks down in practice. For the Plains Indians of North America in the mid-nineteenth century, for instance, the buffalo was not just a one-stop 'tribal department store'; it shaped architecture and attire; it also governed language, creative arts and supernatural belief. For the Indian chief, Plenty-Coups, who announced that, after the buffalo were wiped out, 'nothing happened' in his life, the buffalo's value was immeasurable (Merchant, 1993: 304).

A recent valuation technique that can be applied to the American Indians' relationship with buffalo is willingness to pay. An established concept and method in the valuation of cultural heritage in the western world, what is also known as contingent valuation became widely used for environmental planning in the wake of the Exxon Valdez oil spill in Alaska in 1989, when the US National Oceanic and Atmospheric Administration set up a panel to examine the use of contingent valuation to address questions of value related to the environment (Arrow, 1993).

This technique, which aims to capture user and non-user valuations by creating a pseudo-market, typically employs customer surveys to ask members of the public how much they might be willing to pay, in taxes, for a particular heritage or environmental project (i.e. good or service) or how much they are willing to accept in compensation for the loss of one of these goods/services. Once a reasonable average response has been calculated, the figure is multiplied by the number of households within the project's catchment area, thereby arriving at an overall quantification of the project's public 'value'.

Stonehenge was recently the subject of research using contingent valuation techniques to assess the merits of different approaches to the rerouting of the adjacent A303 road. The study involved asking visitors to Stonehenge and members of the general public from across the country how much tax they would be prepared to pay to bury the A303 in a tunnel. The researchers estimated that the net heritage value of the tunnel was £114 million, to which could be added the benefits of time saved and the reduction in the frequency of accidents (Maddison and Mourato, 2002); these figures were fed into the business case for the tunnelling option (not pursued). Returning to the buffalo example, a handful of Kiowas was so willing to pay for the experience of hunting buffalo one last time in late nineteenth-century Texas that they rode onto a ranch to spear one of the specimens kept there (McMurtry, 1990: 38).

For these reasons, efforts to measure CES in monetary and/or quantitative terms should not be dismissed out of hand. To date, progress toward incorporating cultural values into ES valuation exercises has mostly been concentrated in two areas. Firstly, through emphasis (drawing on insights from environmental psychology) on the health benefits (mental and physical) of ecosystem, nature and landscape-based recreational pursuits and other nature related activities that provide a restorative tonic, as encapsulated in the notion of a 'natural health service'. And secondly, through a focus on tourism related to environmental settings with particular ingredients, animate and inanimate.

Wellbeing is a potentially broad notion, a condition promoted through association with the beauty and inspirational and therapeutic qualities of the natural world, a feeling of connectedness with the other-than-human world and the derivation of a sense of place and belonging through identification with particular environmental settings (WP6 Report: 64). Moreover, to convey how particular places perform a physical, mental, emotional and spiritual healing role, the notion of the therapeutic landscape has been coined and is gaining currency (Kearns and Gestner, 1998; Tyson, 1998; Foley, 2010; Hickman, 2013).

UK NEA highlighted the therapeutic benefits of gardening (specifically allotments in cities and those attached to schools) and 'green' exercise to children's mental and physical health in the environmental settings of school playing fields and the Forest Schools programme. The agricultural landscape is an environmental setting that the National Care Farming Initiative seeks to harness for provision of health, social and education benefits to vulnerable groups. An additional wellbeing benefit that landscape 'delivers' is 'quality (slow) time' with family/friends (Natural England, 2009b: 85). The extension of work in this area into the non-monetary valuation of subjective wellbeing indicators that include identity, knowledge, health, social bonding and connectedness to nature associated with particular environmental settings has also begun: UK NEAFO WP6 on shared and plural values includes an example of this methodology, attached to proposed Marine Protected Areas (WP6 Report: Section 4.4.2.3).

It does not necessarily follow that the therapeutic value and wellbeing benefits of a green space are connected to its biodiversity value. A playing field or urban park may be an environmental setting that is just as monocultural (and just as chemically dependent) as a patch of intensively farmed cropland. We also need to be careful about drawing conclusions concerning the quality of the environmental setting that provides the service: running up and down a coal spoil heap may well deliver the same health benefits as exercise pursued in a more obviously 'green' space a few miles away.

What is clear, though, is that trees in urban areas enjoy particularly high demonstrable value. The Elephant and Castle Urban Forest ('London's secret woodland') consists of over 400 mature trees (mostly London plane) towering amidst the towers of the Heygate Estate, planted in avenues and clusters at the same time as the now largely depopulated estate was built to house 3,000 residents in the 1970s. Now that the area is earmarked for regeneration, the future of the trees and the activities associated with them is uncertain. As part of its regeneration studies, Southwark council valued the trees at £700,000. This figure was disputed by a residents' group that conducted its own valuation exercise employing the Capital Asset Value for Amenity Trees (CAVAT) system, a tool adopted by the London Tree Officers Association, to calculate a value for each square centimetre of tree stem (CAVAT estimates the financial cost of replacing a tree in connection with compensation claims, rather than the value of ecosystem services). The £15 million valuation figure for the urban forest as a whole has been endorsed as feasible by the Forestry Commission. A member of the residents' group, Guy Mannes-Abbott, claimed that the council had significantly undervalued the trees, both in a narrow monetary sense and in terms of what they contribute to the community through provision of a wide range of ecosystem services, not least with regard to psychological benefits and mental well-being (Moore, 2011; Elephant and Castle Urban Forest [no date]).

The second area of CES that quantitative research methods have highlighted is the 'performance indicator' of tourism generated revenue based on charismatic wildlife and scenic beauty. This approach has also registered the increasingly high valuation of wild places. Certain species lend themselves to monetary assessments of value in terms of local income generation. For instance, expenditure in rural Scotland on ecotouristic activities related to 'box-office birds' such as the osprey, golden eagle and white-tailed sea eagle has been calculated: the latter species, according to a recent report, contributes an estimated £5 million a year to the economy of Mull, supporting more than a hundred jobs on an island with a population of 3,000. From this income generation standpoint - which also has collateral ecological benefits in terms of habitat preservation and social benefits related to community cohesion and resilience - the monetary value of other 'iconic species' such as red deer, bottlenose dolphins, puffins and red squirrels has been noted by the chief executive of Scottish Natural Heritage (Jardine, 2010: 24-25; Natural Capital Committee, 2013: 45).

The Natural Capital Committee also singled out wildlife as a particularly precious natural capital asset: 'Like great works of art they are part of our heritage, and in just the same way, once lost they are effectively irreplaceable' (Natural Capital Committee, 2013: 13).

Other indicators of CES amenable to measurement include: sales figures for books and magazines on wildlife and exploring the countryside (as well as for items like bird feed and fishing rods); viewing figures for BBC programmes such as 'Countryfile', 'Springwatch' and 'Autumnwatch'; hit rates for web-based walks and downloads of associated materials (for instance, the 'Discovering Britain' project of the Royal Geographical Society-Institute of British Geographers: 'the stories of Britain's landscapes discovered through walks' [Royal Geographical Society-Institute of British Geographers, n.d.]); and membership numbers for county wildlife trusts and other conservation organizations.

Preferences in landscape character, such as the developing British taste for wildness as a quality of landscape, can also be measured. A YouGov poll (2012) commissioned by the John Muir Trust (established in 1983 to campaign for wild land protection across the UK), based on a sampling of 2,269 adults drawn from a range of socio-economic backgrounds and regions – the first poll to attempt to gauge public attitudes to the siting of wind farms on wild and scenic lands – revealed that 40% of those polled want protection for wild land against commercial wind farms (John Muir Trust, 2012). Moreover, according to a series of 1,304 face-to-face interviews with Scottish residents (over the age of 16) conducted in 2007 at a range of sampling points across Scotland on behalf of Scottish Natural Heritage/Cairngorms National Park Authority, 91% thought it was important to have wildland in Scotland (and 70% considered it very important) - and for a mixture of its economic, biodiversity, spiritual, psychological and cultural/heritage values. The report also established that the presence of cultural features in the form of old buildings was compatible with notions of wildness. 61% rated an image of a moorland with a ruined building as 'very wild', and 31% as 'quite wild' (Market Research Partners, 2008: 3, 13).

Nature and landscape not only provide tangible benefits in the shape of visitor attractions. As data compiled for urban trees in Chicago indicate, the value of environmental settings can also be measured in terms of enhanced property values. Value is also palpable in terms of educational benefits. Pollen evidence in upland peat deposits, for example, offers information about past climates and vegetation, as well as demonstrating the more general theme of interaction between natural conditions and cultural interventions. The so-called abiotic (purely topographical) elements of landscape (non-living nature), such as Dorset's Jurassic Coast and Antrim's Giant's Causeway ((whose value in both national and international terms has been recognized by the listing of these National Trust properties as UNESCO World Heritage Sites), not only fuel a distinct type of tourism known as geo-tourism; they also provide object lessons in earth history (Gray, 2013). The opportunity to roam - and perhaps get lost - is another educational service provided by a natural setting, promoting self-reliance, a sense of direction and a spirit of adventure (Solnit, 2005).

Just like the division of values, benefits and services into the categories of use and non-use, the monetary and the non-monetary, and the quantitative and the qualitative, are also often assumed to be dichotomous categories. Yet they can also be closely related. This was demonstrated by the national and local case studies conducted as part of UK NEAFO WP6 on Marine Protected Areas (MPA) and inshore ('artisan') fisheries at Hastings, Sussex, in UK NEAFO WP6. These case studies employed a mixture of methods: monetary and non-monetary, non-deliberative and deliberative. These methods included storytelling (characterized as a qualitative, non-analytic deliberative method) (WP6 Report: 20), which WP6's researchers deployed as a particularly effective way to elicit insights into engagement/connection with nature, place identity and values of a therapeutic and spiritual nature, as well as those of an experiential character that can be described as transformative (experiences that are memorable and of lasting impact) (WP6 Report: 117-118, 138-142, 180-187).

Another widespread misnomer (particularly in arts and humanities circles) is that natural scientists routinely neglect the human role in ecosystem formation and character. A Defra-commissioned study of England's uplands (2006) invited upland communities to place a valuation on various public goods (including landscape and heritage), and asked them how much they were willing to pay for each of these commodities. Respondents placed the highest value on heritage, because the historic buildings and field walls of upland areas contributed to and were expressive of their 'sense of place' (Defra, 2006). Defra recognizes that England's uplands, as well as being important for their biodiversity and regulatory role in climate change mitigation and adaptation, are of significant landscape, archaeological, recreational, inspirational, heritage, and natural resource value, with anthropogenic activity (livestock grazing) largely responsible for shaping their appearance and character (Clothier and Finch, 2010: 5, 46, 94, 133; Natural England, 2009c: 16-23).

Though the built environment per se is not an environmental setting that features in ecosystem assessment, research conducted by English Heritage into the role of the built environment in shaping what residents think and feel about where they live further illuminates how the ingredient of the past enhances sense of place. Published in *Heritage Counts*, an annual statement of the quality of heritage assets and of the threats facing them produced since 2002 for the Historic Environment Forum (HEF), the findings, which involved 500 adults across England living in places with differing levels of historic environment, indicate that those who live in an area with a richer historic environment are likely to have a stronger sense of place than those who inhabit a less historic environment (English Heritage, 2009: 1).⁷

Place is one of the key terms that CES researchers often prefer to the terminology of ecosystems and environmental settings. Another central term, as indicated, is landscape. Nature, as a term, also remains more or less unavoidable: UK NEA's 'Synthesis of the key findings' was subtitled 'Understanding nature's value to society' (NEA, 2011). National environmental management agencies such as Scottish Natural Heritage and Natural England also routinely refer to place, nature and landscape in their publications and public communications. These terms convey more readily the doubly-cultural nature of ecosystems and environmental settings. For humans have not just shaped the natural environment and left material evidence of that role. They have also imbued it with personal and collective meanings (Jeremy Lake/English Heritage, 2013).

The standard designation in ES discourse and research of cultural benefits as non-use and non-material reinforces, however unwittingly, this unproductive distinction between environment and ecosystem on the one hand and, on the other, between nature, place and landscape. It exacerbates

⁷ For English Heritage's evaluation approach, see *Conservation Principles: Policy and Guidance for the Sustainable Management of the Historic Environment* (Swindon: English Heritage, 2009). Four categories of heritage value are recognized that align closely with the cultural services approach to ecosystems: evidential (material remains of past human activity), historical (stories about the past; illustrative and associative links between past and present people), aesthetic (sensory and intellectual stimulation) and communal/social (collective experience/memory): 7, 27-32. Natural England's report on *Green Infrastructure: Valuation Tools Assessment* (2013) recognized that the various valuation tools under assessment (which include CAVAT, i-Tree, InVEST and HEAT [Health Economic Assessment Tool]) were not applicable to certain types of cultural services, namely spiritual and religious services, sense of place and cultural heritage (38). The relevance of the tools evaluated in the report to the assessment of cultural services was largely restricted to recreation and tourism (with occasional applicability to health and wellbeing). Aesthetic values are considered only with reference to visual amenity and associated property values (see pages 1, 8, 10, 13, 15, 17, 21, 23, 26, 37, 46, 49, 52, 55, 63). I thank Jenifer White (Senior Landscape Advisor, English Heritage) for bringing these reports to my attention.

the tendency to view 'environment' as separate from people – as an 'objective', or scientific entity. By contrast, 'landscape' - defined by the European Landscape Convention (2000) as 'an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors' - is approached as a 'subjective' concept. The European Science Foundation's associated briefing on landscape relied on a clear distinction between landscape and environment: 'We live not only in an environment, not only in a physical reality but also in our perception of it – in a landscape. Landscape includes the physical and the mental, the natural and the cultural. For our wellbeing both the environment and the landscape are equally important' (European Science Foundation, 2010: 1; Daniels and Cowell, 2011). Leaving aside the degree of overlap between landscape and environment, this characterization of landscape demonstrates its continuing relevance and cultural vitality, despite traditional associations with scenery and the scenic.

5. Contributions of Individual Subject Areas & Approaches within AH

Though divided into separate headings such as aesthetic and spiritual within the overall category of cultural services, the values and benefits associated with CES are often mutually reinforcing and sometimes inextricably interwoven. It can be hard to determine when an aesthetic experience ends and a spiritual one begins (or vice versa). Yet values often clash, too, especially in the recreational/therapeutic spheres, with different user groups deriving different benefits from the same, sometimes reluctantly shared environmental settings: ramblers and mountain bikers; canoeists and power-boaters, sports fishermen and wildlife conservationists, dog walkers and wildlife conservationists. Moving beyond the recreational sphere, a concentration on one particular cultural value may detract from the appreciation of another one. The historic content of England's countryside, English Heritage notes, 'can be too easily missed' through a focus on the value of landscape as 'beautiful scenery' (English Heritage, no date). There may also be friction between landscape conservation (emphasizing the recreational and scenic value of open country) and nature conservation (favouring a more species-rich, forested environment). Rather than discuss each individual cultural value, however, or approach the AH contribution from the standpoint of recognized subject areas such as history, geography, performance and literature, this section approaches the contribution of the AH community from the perspective of selected themes and areas of concentration, examining, in turn: environmental ethics and aesthetics, ecolinguistics, religion and spirituality, creative expression, and stories and narrative. This section (whose content inevitably reflects the composition of the working group – music, for instance, is largely absent from the coverage), concludes with a survey of cutting-edge examples of the potential of mapping (often, but not exclusively pursued within geographical studies) as a particularly inclusive and imaginative form of arts and humanities research. Creative expression and stories and narratives, it is freely conceded, underpin a good deal of AH work in general. Yet these core qualities within the AH sector as a whole are precisely what commend them for special treatment in a report intended for a wide readership.

5.1. Environmental ethics and aesthetics

Philosophical reflection and argument enable us to unpack and dissect the character of various kinds of CES, such as aesthetic and inspirational values, and what it means to value environments in these ways. A philosophical approach can, for example, identify categories of value discussed extensively in aesthetic theory, categories with clear resonance in practice too, such as, beauty, sublimity, awe, majesty, grandeur, tranquillity (and ugliness). Such an approach can also bring clearer thinking to our experiences of natural beauty by identifying the variety of concepts or aesthetic terms that underpin acts of valuing. For instance, what, precisely, does it mean to find an oak wood to be *magical*, a deer *graceful*, or a moorland *melancholic*?

This perspective can identify the layers of aesthetic engagement that, again, undergird our valuing of environments, such as the emotional and the imaginative, as well as the cultural meanings that surround and penetrate any particular aesthetic experience. The VINE Project (Values in Nature and the Environment, 2013), an initiative of the Forum for Application of Conservation Techniques, seeks to encourage discussion of 'feelings' inspired by nature by examining ways in which art and literature can convey 'universal feelings', pointing out that 'sometimes we hide behind the anonymity of scientific jargon because we have no words for our own emotions'.

That CES values shift over time also means that they are highly suitable for examination from the standpoints of aesthetics and ethics. The difference in assigned value between today and some point in the past may be partly a function of the scarcity theory of value. Both the natural environment sector and the historic environment sector routinely make the case that rarity carries greater value and brings a greater responsibility for care, in recognition of the fact that, whether breeding pairs of choughs or prehistoric burial mounds are at issue, they are the last remaining examples.

This is true, but only up to a point. The 'man-made' heritage represented by the historic/built environment is sometimes non-renewable in a material sense: the Anglo-Saxons are not building any more churches and Beethoven is not writing any more symphonies. Once a barrow has been destroyed by a plough, its physical, archaeological and aesthetic values are also lost forever (Holyoak, 2013). On the other hand, the notion that the stock of heritage is invariably finite is challenged by the identification of a moving frontier that constantly creates 'new heritage', the view that heritage is a process as much as a product, and the emphasis on heritage management as the management of change (which creates heritage) as well as straightforward preservation (Fairclough, 2009: 29-41; Fairclough, 2014).

Nor is conservation the only option for the heritage embodied in the natural environment. It may be possible to recreate former environments (by planting moorland with native broadleaf trees or substituting them for plantations of non-native conifers) and to reintroduce species, provided they are not extinct globally (witness the reintroduction, based on Russian stock, of the great bustard, after a 175-year absence, to semi-natural chalk grassland on Salisbury Plain protected from arable farming by the military presence since the late nineteenth century).

How many choughs or burial mounds we need to protect in Cornwall and Wiltshire respectively is another matter, and one for philosophical and cultural as well as political debate. So is the question of why we need to protect species in the first place – as, for that matter, is the question of whether we should privilege rare species over the common ones that provide the majority of ecosystem services. When asked how many wilderness areas the United States needed – the implication being that surely a handful were sufficient – a leading 1930s wilderness preservationist retorted in a manner that exposed the absurdity of the question: 'how many Brahms symphonies do we need?' (Mongillo and Booth, 2001: 117). All judgments about value, whether natural or cultural, are relativistic and raise the question of commensurability as well as quantity and representativeness: 'How many Gershwin songs sum up a Shostakovich symphony? Is a Haydn string quartet better than a Hemingway short story? How does a Blake poem compare to a modern ballet performance?' (Cowen, 2006: 6).

By the same token, is a small scale traditional orchard 'better' (more valuable) than an enormous field of wheat? How does Snowdon compare to the Somerset Levels? Moreover, perceived 'naturalness' may not always enjoy such a high premium. There are a variety of tastes and taste also changes and develops over time for individuals and groups alike. By 2100, a forest composed of plastic trees could have become more aesthetically and ethically acceptable than it was in the early 1970s, when Martin Krieger published a provocative essay on the malleability (plasticity) of conceptions of nature entitled 'What's wrong with plastic trees?' (Krieger, 1973).

The distinction commonly drawn in today's ES discourse between value transmitted through direct contact (experiential value) and value that simply exists (existence or other-regarding or intrinsic value) is not new. Though this terminology was not yet in use, Aldo Leopold, a pioneering environmental ethicist, employed it in all but name in the 1940s. Citing the example of the sports hunter, he observed that: 'To enjoy he must possess...Hence the wilderness that he cannot personally see has no value to him. To those devoid of imagination, a blank space on the map is a

useless waste; to others, the most valuable part. (Is my share in Alaska worthless to me because I shall never go there?)' (Leopold, 1949: 126).

As Leopold indicated, the value of the Alaskan wilderness is not restricted to actual consumers of its big game animals. Others in the United States and beyond may value their knowledge that Alaskan wilderness continues to exist and that portions of it are protected on behalf of the American nation and humankind as a whole - not to mention on behalf of its resident flora and fauna. (Whether existence value is the same as intrinsic value is open to debate: is the former a value derived from the receipt of a benefit, in this case, the comforting reassurance that there is still wilderness in Alaska?) Those who value the sheer existence of Alaskan wilderness may never intend to go there. Yet they may also value the thought that they could visit it next year or in ten years (so-called option value). Moreover, someone living in Anchorage, Berlin or Singapore could value the idea that the Alaskan wilderness will continue to exist for future generations to enjoy and learn from (bequest value).⁸

Economists classify the aforementioned types of value as 'non-use' values (Cowell, 2008: 130). Further attributes with negative connotations follow ('non-rival' and 'non-excludable'), because nature, like cultural heritage, constitutes a public good, which can be defined as 'a resource which generates a range of benefits over and above those that are enjoyed solely by the individuals who own and use it' (Cowell, 2008: 128). Public goods are deemed to be 'non-rival' and 'non-excludable' as regards consumption, by which something positive is actually meant: that consumption by one person does not preclude consumption by someone else, whether at the same time or later. In other words, once the good or service is provided, others are not excluded from access to it.

Humanities approaches are also well positioned to conduct a more rigorous philosophical examination of the very notion of 'value' itself. Traditional neoclassical economic indicators measure the value of something according to what people are prepared to pay for it. What this approach overlooks, though, is how advertising practices market products by making them appear to satisfy the basic and higher human needs - for belonging, identity, respect, recognition of worth, health and happiness - that generate wellbeing (physical, psychological/mental and spiritual). Ecosystem assessment needs to be embedded in a strong philosophical framework of where value lies, and, at the very least, should be self-reflective about its own assumptions. Environmental philosophy, ecolinguistics and religious studies can all play a key role in creating a more self-aware and sophisticated framework for assigning 'value'.

Philosophical investigation of the basic stuff of environmental economics, such as willingness to pay, cost benefit analysis and distinctions between 'use' and 'non-use values, can usefully provide background to, complement and enrich the relevant empirical findings that are available for aspects of CES. For instance, Selman's and Swanwick's study of the meaning of 'natural beauty' for the Countryside Commission for Wales elicited a range of individual expressions and common themes from stakeholders who responded to a written consultation exercise and attended a workshop.

⁸ Kerry Turner also argues, from an environmental economics perspective, that nature's value is a multidimensional concept. Borrowing a four-cell typology from the literature of environmental philosophy, that distinguishes between instrumental and intrinsic value and between anthropocentric and non-anthropocentric values, Turner reviews the concepts of 'total economic value' (the conventional environmental economics concept that distinguishes between 'use' and 'non-use' values), 'primary/glue value' (those related to structure and functioning properties of ecosystems that bind up everything) and 'intrinsic value', paying substantially attention to 'non-use' values such as existence and bequest values (Turner, 1999).

Expressions that individuals employed included 'stunning', 'splendour', 'majesty' and 'engages all the senses', notions that elude appraisal and measurement using standard economic tools. Shared values articulated by those consulted resonate loudly with philosophical conceptualizations in their references to 'the significance of intangible qualities such as tranquillity, remoteness, sense of freedom, inspiration, 'magic'" and 'the importance of "diversity" of attributes and "combination" of qualities' (Swanwick, Selman and Knight, 2006; Selman and Swanwick, 2010: 19). Many of the same qualities were encountered by UK NEAFO WP6 researchers working on a national case study of values associated with Marine Protected Areas/Marine Conservation Zones, and also cropped up in the story-telling elements of their deliberative monetary valuation (DMV) workshops and focus group sessions involving sea anglers and divers (WP6 Report: 183).

Theorizing about natural aesthetic value reaches beyond more reductive meanings that have been attached to the aesthetic point of view. In conservation, landscape and environmental discourses, aesthetic value is sometimes understood narrowly and superficially in terms of scenic value, whereas theoretical discussions informed by a philosophical approach often bring out the immediate, multisensory and immersive character of the envired aesthetic experiences of and engagements with nature, for the individual and groups alike. In fact, John Rodwell (2013: 1) has suggested 'sensory experiences' as a replacement for 'aesthetic experiences' to address the latter's historical connotations of 'elitism and good taste'.

Another common problem is the assumption that aesthetic values ought to be articulated in terms of aggregated individual preferences - the deep subjectivity of 'beauty is in the eye of the beholder' (Brady, 2006). Yet, deeply rooted discussions in philosophy argue that aesthetic judgments may be supported through forms of 'aesthetic testimony' and 'perceptual proof', revealing how aesthetic valuing may have a shared, inter-subjective or even more objective foundation (Sibley, 2001; Meskin, 2004; WP6 Report, Section 2.4.1). There is important work to be done in marrying such long-standing philosophical discussions with empirical, qualitative explorations of shared natural aesthetic values.

Attempts to define, characterize and measure natural beauty are not matters of strictly academic or intellectual interest and import. A more watertight definition might help rebuff legal challenges to the protection of environmental settings based on the criterion of natural beauty. (The conservation and enhancement of natural beauty is one of the statutory duties of an Area of Outstanding Natural Beauty [AONB], but there is no reference to protection and enhancement of cultural heritage. In contrast, national parks have the responsibility to conserve and enhance 'cultural heritage' as well as natural beauty.) Whether definitions of natural beauty are strict, or broad enough to include cultural heritage, was recently a very live issue in connection with proposals for new national parks in the New Forest and South Downs. In March 2005, the inclusion of a particular patch of land (Hinton Park) within the boundaries of the newly designated New Forest National Park was challenged (Meyrick case) on the grounds that it did not merit the designation of exceptional natural beauty (its qualities being more historical and cultural than natural). Discussions about what constitutes 'natural beauty' and whether this also embraces cultural heritage (as well as flora and fauna) reoccurred during planning for a South Downs National Park (2011) and the Natural Environment and Rural Communities Act of 2006 updated the statutory definition of natural beauty to include wildlife and human influence (i.e. cultural features and heritage) (Selman and Swanwick, 2010: 16-18).

Aesthetic value – by general consensus one of the thorniest of ecosystem services in terms of its 'intangibility' and 'immeasurability' – provides just one example of how AH research may profitably feed into the CES framework. Moreover, there are precedents for the contribution of philosophers to environmental planning and policy, among them Alan Holland's and Kate Rawles' report (1994) to

the Countryside Council for Wales on 'The Ethics of Conservation', and the projects of the philosopher and political economist, John O'Neill, for the European Commission (Holland and Rawles, 1994; O'Neill, 1998 and 1999). Openness to alternative forms of method and approach, as well as flexibility around what counts as evidence, will allow AH researchers to contribute materially to CES.

Going beyond the existing parameters of CES discourse, some philosophers have recently attempted to re-articulate environmental ethics by locating value and meaning in human-nature relationships. This approach seeks recognition for our meaningful, transformative interactions with the rest of nature. This fresh emphasis is in contrast to ethical approaches that place environmental values at a distance, 'out there' in nature, as it were, rather than generated through relationality. This new 'environmental pragmatism' shrugs off the 'wilderness ethic' that has dominated internationally influential North American and Australian scholarship and reveals how humans can develop meaningful (affective) relationships with other-than-human nature without falling into a deeply anthropocentric perspective (O'Neill, Holland and Light, 2008; Brady and Phemister, 2012; James, 2012 and 2013). New theoretical directions such as this propose more complex ways of understanding how the nature that we are part of matters to us, beyond merely assigning the notion of value.

5.2. Ecolinguistics

As well as taking issue with the negative framing (however unconscious) of cultural values in terms of absence (non-use and non-monetary), some CES researchers also find off-putting the 'transactional' approach to 'obtaining' a 'service' from 'stocks' of 'natural capital' that infuses much ES discourse and analysis. John Rodwell notes 'a general dislike of using the term "services" in relation to any kind of cultural relationship, and a preference for the term "benefits"' (Rodwell, 2013: 6). It is all too easy to succumb to a consumerist mindset, in which we see ourselves as customers who want to maintain existing levels ('flows') of service provision.

A striking example of the language of consumption and commoditization is Natural England's report on 'Experiencing landscapes' (2009). Identifying a 'portfolio of places pyramid' that extends upwards from the local and ordinary to the more distant and special, this report adopted the analogous experience of food shopping sites, the latter rising from the broad base of the corner store to the apex of a specialist deli. A food shop just beneath the top of the pyramid is described as follows: 'Here, you want to splash out and get the top quality experience (like Waitrose)'; and 'really hits the spot in terms of indulging exactly what you need at that time (such as the perfect bluebell wood, or a great ridge walk)' (Natural England, 2009b, 25, 39, 95). Language of this sort is doubtless adopted for ease of communication: there is no sinister underlying agenda. But it does illustrate how the language of the consumer society is becoming increasingly normalized and pervasive. Besides, ostensibly neutral words like 'development', 'resources' and 'sustainable development' (as distinct from '*ecologically* sustainable development') strike some linguistics experts as inherently exploitative and encouraging of a tendency to reduce, simplify and negate the complexity of natural systems (Trampe, 2001; Schultz, 2001; Norgaard, 2010).

As well as helping to uncover underlying assumptions and mindsets, an ecolinguistic perspective can help us recognize the connections between ecosystem protection and the conservation of human cultures, for which ethnobiologists have the concept of biocultural diversity (Martin, Mincyte and Münster, 2012: 5). A branch of ecolinguistics deals with how local languages entrench ecological knowledge of local environments. Languages contain narratives, stories, words and metaphors about

local flora, fauna and topography, and this linguistic knowledge helps transmit information about how to live sustainably in that particular place to future generations. It is important to protect these local languages (or dialects) to conserve linguistic diversity. And conservation of local ecosystems is a crucial part of this exercise because these places and their ingredients are mirrored in local languages and shape the identity, sense of place and culture of those who speak them. The loss of a local language entails the loss of local environmental knowledge about living sustainably within local ecosystems, which can lead to degradation of those ecosystems. In the case of flooding a valley to build a dam, for example, relocating a local population would create cultural disruption because their language would not match the ecosystem in their new location (Mühlhäusler, 1995 and 1996; Nettle and Romaine, 2000).

Not least, ecolinguistic analysis deserves a central position in the general process of writing a large, multi-authored report aimed at multiple audiences that has a potentially significant role in shaping how people view ecosystems and other elements of the natural world. Through investigating the written discourse adopted in the various individual reports, as well as the oral discourse featuring in deliberations that lead to the reports, ecolinguistic analysis can help unearth unspoken assumptions, unarticulated models of the world and implicit value systems. All discursive models (including frames, metaphors, scripts and schemas) possess advantages and disadvantages in reaching particular audiences and promoting specific kinds of values. The aim of ecolinguistics is not to push for one particular model but to make sure that those working together on report preparation are aware of the underlying models and worldviews so they can engage in self-reflection and make more conscious and informed choices about which one to select, based on awareness of the potential impact on readers.

And at the end stage of producing the reports' final versions, an ecolinguistic approach can help ensure that the fundamental assumptions of the report's discourse are rendered explicit, that inconsistencies in assumptions and outlook across different parts of the reports are noticed and explained, and that adjustments are made to mitigate some of the disadvantages of particular discursive models. Ecolinguistics is integral to the process itself, informing production at all stages as part of the larger self-analysis that informs the assessment process (Alexander, 2009; Cox, 2006; Fill and Mühlhäusler, 2001; Stibbe, 2012b).

5.3. Religion and spirituality

In his landmark essay on the historical roots of the environmental crisis of the 1960s, the medieval historian, Lynn White, Jr., argued that religious 'worldviews' profoundly shape the way people understand their place and role in the world, influencing, in turn, what they do. As a result, the comprehension and transformation of religious perspectives was a priority within the urgent task of changing how we think and act with regard to the 'natural environment': 'what people do about their ecology depends on what they think about themselves in relation to things around them. Human ecology is deeply conditioned by beliefs about our nature and destiny – that is, by religion...More science and more technology are not going to get us out of the present ecologic crisis until we find a new religion, or rethink our old one' (White, 1967: 1205-06). For White, Christianity bore a particular burden of responsibility for the instrumentalist attitude that spawned environmental degradation, and his provocative essay spawned a wide-ranging debate about the relationship between religious belief and attitudes to the natural world. The links between Christian belief and environmental ethics, for example, were investigated in an AHRC-funded project, 'Uses of the Bible in environmental ethics' (2006-09) (<http://humanities.exeter.ac.uk/theology/research/projects/uses/>; Horrell, Hunt and Southgate, 2010; Horrell, 2010).

‘For religious and spiritual goods’, MA’s authors noted, ‘the knowledge gaps’ with regard to CES were ‘particularly noticeable’ (MA, Synthesis, 2005: 6). UK NEA’s report not only reiterated this point but also noted the lack of broad and agreed definitions for these two concepts (UK NEA, 2011: Chapter 16, 46-47). Additionally, despite acknowledgment of the breadth of experience and practice encapsulated in a term such as ‘spirituality’, the focus, to date, in terms of concrete examples, has been on the traditional and conventional ‘religiously significant’ places, such as the islands of Lindisfarne (Northumberland) and Iona (Argyll and Bute) and other places of pilgrimage such as Walsingham Abbey, Norfolk (which bills itself as ‘England’s Nazareth’). Though places like these are indubitably endowed with immense religious significance, both past and present, work in the sociology of religion over the past two decades points us toward a more inclusive approach.

Grace Davie’s early work, for example, indicated that evidence of religious beliefs was much wider than the number of people belonging to religious institutions would suggest. She found extensive evidence of ‘believing without belonging’ (there is of course also ‘belonging without believing’, but that is another subject) (Davie, 1994). More recent work on Kendal affirmed Davie’s findings, showing that, whereas membership in traditional religious denominations such as churches was indeed on the decline, ‘spirituality’ in a wide range of forms was very much alive and well within this Cumbrian town (Heelas and Woodhead, 2005; Seel, 2001).

Much hangs on the definition of slippery terms. But most scholars of religion and spirituality today would argue for a catholic notion of spirituality that encompasses things such as a sense of awe and wonder and a sense of self-transcendence, through which we locate and ‘place’ ourselves within a larger context on the earth and within the cosmos. This inclusive approach to spirituality and religious belief and experience also informed the UK NEA-inspired ‘Workshop on Aesthetic and Spiritual Responses to the Environment’ held in York in January 2013 under the auspices of York University’s BESS (Biodiversity and Ecosystem Service Sustainability) programme. UK NEAFO WP6 on Shared and Plural Values (whose sections on spiritual and aesthetic values stressed their non-instrumental nature) also identified a category of value characterized as transcendental to indicate a type that transcends specific circumstances and is independent of any specific object of value, and therefore more deeply held than other values (WP6 Report: 14, 29, 36, 47, 51).

It is important, as well, that our understanding of awe and wonder embraces the threatening and scary (‘dark’) aspects of nature as well as its more positive and pleasing attributes. For some, the element of danger is integral to the notion of wildness and an indispensable ingredient of wild places themselves. It is entirely possible to perish in a blizzard on one of Britain’s mountains, despite their relatively modest height (and at least a few people do, each year), or by falling off a cliff. Yet one particular ingredient of danger is lacking in the British Isles: there are no large, potentially dangerous predators to instil a healthy dose of humility and fear in the alpha species. We should also be aware that, at the other end of the spectrum, nature carries a host of superficial and banal cultural associations, which Stephen Daniels has referred to as ‘scented candle’ values (Daniels, 2013).

Though it is difficult to draw a clear line between spirituality and other aspects of psychological and mental health, those experiences engendered by the natural world that enable the self to escape an inner self-absorption, for example, are a significant part of human wellbeing and flourishing. The relationship between this particular value and an environmental setting characterized by trees was emphatically stated recently by James Jones, the Bishop of Liverpool, who chaired the Independent Panel on Forestry. In his foreword to the Panel’s final report, Jones celebrated the role of Britain’s forests and woods as ‘cathedral for the spiritual’ (Independent Panel on Forestry, 2012).

Fuller appreciation of the depth and extent of spiritual engagement with the natural world in advanced industrial countries such as Britain may be hindered by the belief that cultural considerations arise more powerfully in traditional and non-western cultures than contemporary ones. This assumption that the processes of development and westernization reduce the 'spiritual' stake in the environment is evident in the persisting belief that sacred spaces are familiar to traditional cultures but not to modern ones. This view is tenacious despite the publication, almost twenty years ago, of historian Simon Schama's *Landscape and Memory*, in which he disputed and refuted the view that western cultures are disenchanted and desecralized, enjoying a far less intimate relationship with the mythological and spiritual aspects of landscape and nature (Schama, 1995).

Insofar as feelings of spirituality and religiosity are part of the felt experience that is rooted in outdoor environments, an observation of Robin Grove-White is particularly relevant. 'Concepts such as "amenity" and "recreation"', he contended, 'are more and more inadequate for reflecting the full dimensions of felt experience' (Grove-White, 1992). Such dimensions of human experience may be located in an individual capacity. Often, though, they are accessed through participation in group or communal activities, whether these are quasi-religious groups or fraternities of walkers, fell-runners, cyclists, swimmers, surfers, divers and anglers. 'Communities' of this nature are precisely those that offer cases where the profoundly spiritual dimensions of place are both evident and of consequence.

It is often thought that individuals may be reluctant to express spiritual values. Or that, as discussed above, investing nature with spirituality is the preserve of non-western, indigenous peoples. But surfers, for example, from Cornwall to California, frequently resort to language infused with spirituality to talk about their encounter with the ocean (Taylor, 2008 and 2009; Ferris, 2008). Recognition of this kind of dimension to surfing means that places on the Cornish coast like Fistril North and Porthleven possess CES value not only in terms of 'sport', outdoor leisure or tourism, but also in a spiritual sense and all that this entails for a rich, rounded notion of wellbeing (Horrell, 2013). Similar observations could be made of places where walkers and runners find their most profound moments of exhilaration and are (if momentarily) overcome by a sense of the sheer immensity and beauty of the place where they currently stand or are moving through (places that nurture a sense of humility and restraint). In this regard, the role of variables such as gender and region merits further scrutiny. One of the most intriguing findings of Natural England's *Experiencing Landscapes* report (Natural England, 2009: 9, 35) was that the 'tendency towards spiritual feelings' was stronger among women than men and 'slightly more prevalent' in the south than in the north. And, just as consideration of environmental settings that are associated with or conducive to spirituality are not confined to traditionally defined notions of 'sacred space', the transporting power of such places is by no means restricted to the most obviously iconic and renowned environmental settings.

Furthermore, just as Davie has suggested a notion of vicarious religion – that for many people it is important that religious sites such as cathedrals and practices continue to exist, though they have no intention to attend or participate (Davie, 2007) – so, too, can a kind of vicarious engagement with various environmental settings be profoundly important for those who cannot directly encounter them. An example is that of the elderly or disabled person, who might be profoundly uplifted by a television programme on the wildlife or flora that emerges in the British springtime. And a crucial part of that elevating (spiritual) experience could well be the knowledge that this is not library footage, but an actual, live-time recording of what is out there now, in fields and hedgerows, or in urban gardens.

A wide range of social-scientific studies can be designed to explore the extent to which 'spiritual' values are an integral part of the encounter with place for various groups of recreationists and

others (as UK NEAFO WP6 researchers accomplished for divers and anglers in a case study of Marine Protected Areas). Arts and humanities approaches can make their most distinctive contributions, however, in the following areas: by helping to define notions of spirituality by drawing on various philosophical and religious traditions; relating spirituality to ‘values’ and concepts such as beauty, awe, wonder and the sublime, and developing cogent accounts of those values (Brady, 2013a); considering the contribution of such values to a whole and healthy human life, one that has outward as well as inward-orientation (through which we enter into the realm of ethics); and by exploring how, through studies of religious traditions and creative media such as literature and art, the encounter with nature shapes identity, a sense of purpose, a notion of ‘located-ness’ and of ‘at-home-ness’ in the world (Myers, 2008). And if a sense of identity and belonging is indeed vital not only to individual wellbeing but also to the cohesion of communities, then the contribution of ‘ecosystems’ – variously experienced – may be much greater than current forms of accounting have so far been able to register.

5.4. Creative expression and place

Not only can AH approaches help identify and record the existing benefits, individual and collective, of environmental settings in terms of knowledge acquisition, wellbeing (broadly defined) and community cohesion. They can play a part in increasing the value of these goods by encouraging higher levels of use of nature’s services. Artwork, plays, poems, books (nature writing, even if its practitioners recoil from the term, is emphatically back in fashion), talks, exhibitions⁹ and web-based materials can encourage people to explore places that are mutually shaped by nature and culture. There are two main ways of accomplishing this: the first is for creative practitioners to produce inspiring poems, paintings, films and other artworks, based on a reflective process informed by evidence of the cultural benefits of ES.

One of nature’s most vital contributions is undoubtedly the provision of a setting conducive to the ‘unbidden’, revelatory experience - perhaps by becoming ‘delightfully lost’ (Waterson and Saunders, 2012). In short, this sort of nature-based experience is something that is not pre-programmable or guarantee-able. Directly relevant in this regard is the notion of ‘escapism’. Nowadays, this often carries pejorative connotations, tarnished by the assumption that, in seeking out nature, we are trying to get away from something or somewhere rather than being attracted to something or somewhere. It is equally important to rehabilitate the notion of idleness by approaching it in terms of constructive indolence, a positive condition that serves, in combination with an inspiring environment, as a wellspring of creativity (Pite, 2013).

⁹ The exhibition (‘Humphry Repton at Sheringham: Bringing landscape to life, 18-12-2012’; August 2012 to August 2013) to mark the two hundredth anniversary of Repton’s design for Sheringham Park in Norfolk, which included a short film, a catalogue and a guided walk (available as leaflet and phone app), was a product of the AHRC project, ‘Bringing landscape to life: Environmental histories and Sheringham Park, 1812-2012’. Pursued in conjunction with the site’s owner since 1987, the National Trust, this project (2011-12) examined the multi-storied histories of the site within an environmental history that predated the creation of the designed landscape, as well as exploring, more generally, the implications of environmental change for the restoration, management and interpretation of designed landscapes of high cultural and environmental value: <http://vimeo.com/54938918>; <http://www.landscape.ac.uk/landscape/impactfellowship/bringing-landscape-to-life.aspx>

The second method is for humanities subjects such as literature, linguistics and cultural studies to encourage the more widespread employment in education and the media of materials that move people to avail themselves of nature's cultural services more extensively. Sub-disciplines such as ecocriticism, ecopoetics, ecolinguistics and ecofeminism are already engaged in critiques of a wide range of materials from a theoretical framework informed by ecological principles. This can provide an evidence base to guide the selection of materials for schools and other educational institutions, as well as for the NHS, and the media. An example for the NHS would be a doctor who recommends materials to patients that encourages them to improve their mental health through encounter with the natural world. For NEA purposes, it would be particularly advantageous to identify environmental settings with a high but unrealized potential for benefiting local populations, such as an 'edgeland' rich in biodiversity or close to a socio-economically deprived area, as well as marking out areas of this kind that are already appreciated by locals (if not, yet, by decision-makers).

Writers of fiction and non-fiction who enjoy a powerful personal connection to place, nature and landscape and eloquently express their passion for particular places or environmental settings (whether these texts are part of the current resurgence of 'nature writing' (e.g. Macfarlane, 2003, 2007 and 2012; or from earlier times) provide strong evidence of the cultural values transmitted by particular types of environment when they persuade readers to partake of these values.¹⁰ The site-specific value added through an illustrious literary connection is demonstrated by the choice of region for a pioneering 'literary GIS' project: 'Mapping the English Lake District: A Literary GIS' (Cooper and Gregory, 2009; Cooper, 2011). The Lake District - especially the shores of Ullswater, where the poem is set - serves as a hotspot of cultural value for tourists from Japan, not least because many Japanese are assigned Wordsworth's 'Daffodils' when learning English at school. Nonetheless, the recognition and recording of a collectively-held value of this sort does not have to result in a fetishization of places that have moved authors and artists to create canonical works. If a particular author found beauty and other cultural values in a specific grove of yew trees and communicated it in an infectious manner, that does not mean that the reader can only access those values when also in, say, the Lake District's Borrowdale Valley, which inspired another of Wordsworth's best known poems. It is groves of yew trees in general and places that possess a similar spirit that, in principle, are worthy of protection, not just the specific site that happened to supply the original inspiration (Stibbe, 2013). In practice, though, for many people, the association of a place with a particular individual or event, sometimes reflected in its name, is precisely what imparts value.

Similarly, the emphasis should be placed not just on 'classics' but also on recent writing such as Robert Macfarlane's *The Wild Places* (2007), Paul Farley's and Michael Symmons Roberts' *Edgelands: Journeys into England's True Wilderness* (2011), and George Monbiot's *Feral: Searching for Enchantment on the Frontiers of Rewilding* (2013). For books such as these extract value from 'fugitive', feral non-places, 'scruffy' and 'unkempt' in-between lands previously overlooked (Shoard, 2002: 117). Metrics are certainly available in terms of sales figures for books and loan statistics from libraries. But the vital criterion is whether the writing touches readers deep within and reveals something they had never seen or felt before. An instructive exercise might be to take a group to an

¹⁰ To capitalize on the capacity of strong literary associations to boost the heritage value of a mountainous region, Rosalinda Ruiz Scarfuto has proposed the establishment of 'literary routes' in the Guadarrama Mountains, a mountain range near Madrid that has played a particular strong inspirational role in Spain in terms of the production of renowned literary works (various prize-winning Spanish authors, for example, were closely connected to these mountains). These routes would aim to enhance awareness and appreciation of the intertwined natural and cultural heritage of a delicate ecosystem while also encouraging the spread of responsible tourism sensitive to the interests of local stakeholders (Scarfuto, 2012 and 2013).

edgeland, hear their views on the value of the place in question, then assign *Edgelands*, and, afterwards, take them back to find out if they have found additional value there since their initial visit.

The example of the unclassified wastelands or edgelands that occupy the frontier zone between town and country provides a reminder that CES research should acknowledge that people can derive inspiration, a sense of place and heritage value from environmental settings that are less than green and pristine – even an abandoned (and probably still contaminated) mine site. ‘Wastelands are important as places of possibility’, reflects artist Lara Almarcegui, who campaigns for empty lots, ‘because one can only feel free in this type of land, forgotten by town planners. I imagine that, in a few years’ time, those wastelands that were protected by my projects will be the only empty spots within built areas’ (Alfrey, Daniels and Sleeman, 2012: 7). Artworks have the power to protect by converting ‘blank’ space into ennobled place.

Just as we should be aware of the danger of assigning higher cultural value to conventionally attractive places with literary or artistic associations, we should also be alert to the iniquity of privileging places possessing dramatic topographical features. Natural England’s ‘Experiencing Landscapes’ exercise identified the ‘big hitters’ among landscape features as water, rivers, streams, coast, mountains, hills and moorland. The report noted the ‘necessity for height’ in delivering inspiration (and a spiritual experience) and providing a setting for ‘escapism’. Recently, the arguably underappreciated values of eastern England’s lowland landscapes, such as Lincolnshire, have been promoted in the ‘Carrlands’ (2007) and ‘Warplands’ (2011) ‘soundwork’ of Mike Pearson, a performance artist and researcher of placed-based, site-specific performance (Pearson, 2007; 2011a; 2010; 2011b). Natural England’s report also contrasted mountains with woodland, noting that the latter possessed ‘less of a capacity to deliver inspiration’ (Natural England, 2009: 6, 13-14, 31, 0, 95, 43, 47) This reference to woodland’s weaker delivery power should probably be revisited in light of the public outcry (2010-12) over proposed changes to the management of the public forest estate.

Does the elevation of certain places or CES ‘hotspots’ (many of them literally elevated) make it easier to downgrade places whose value is not enhanced by a link with a renowned poem, painting or novel? What about environmental settings beyond ‘Tarka Country’ (North Devon), ‘Coleridge Country’ (Quantocks), ‘Constable Country’ (Suffolk/Essex borderland), ‘Brontë Country’ (southern Pennines) and ‘Wordsworth Country’/‘Potter Country’ (Lake District)? Will it be easier to site a controversial development in ‘white spaces’ (cold spots) on mental and physical maps that have not been dignified by artistic attention and subsequent public adulation? Questions such as these are ones that AH researchers are particularly well equipped to address.

The (non-statutory) *Register of Landscapes of Special Historic Interest in Wales* established in 2001 by the Countryside Council for Wales (CCW) and Cadw adopts an approach that singles out ‘the most complete and best-surviving landscapes in Wales’. However, this ‘crown jewel’ perspective has been criticized precisely because it could work to the disadvantage of non-listed places and areas, which, it might be inferred, were therefore of inferior value and, accordingly, more exposed to compromising developments. In this respect, the non-discriminatory approach of Landscape Character Assessment (LCA) provides an example of best practice. The identification of indicators for cultural ecosystem services is in fact an activity that landscape characterization professionals in Britain and Ireland have been involved in, however unwittingly, since the early 1990s (Herring,

2009).¹¹ This work is underpinned by a revitalized and inclusive concept of landscape derived from the European Landscape Convention adopted in 2000 that embraces the non-picturesque, the ordinary, the urban and the industrial without prejudice. LCA does not aim to set up a hierarchy of landscapes. What makes one landscape different from another, not better or worse, is the concern.

It is worth noting, in this regard, that a significant minority of participants in a CES participatory mapping survey on northern Vancouver Island refused to attach relative value to specific locations and to identify areas of non-monetary significance for a mixture of reasons: because they rejected the notion of distinct (hard) boundaries; were concerned about the sovereignty of local knowledge and the dangers of sharing private knowledge; believed that it was invidious to assign higher value to certain locales; and/or because the place where a particularly memorable personal experience occurred was not, in their eyes, in itself particular special or valuable. As an interviewee commented: 'as soon as you start isolating things and say this is important to me, you lose the rest...that's the risk...we start drawing lines, suddenly what's outside of the line becomes available for development' (Klain & Chan, 2012: 5).

5.5. History, stories and narrative

A fundamental insight from the arts and humanities is that, whether we call them places, landscapes, environments or ecosystems, our material surroundings are 'carriers' of meaning. An historical perspective helps us grasp how their associated values have emerged over time and how we still live with the past. The study of the past also equips us with a reservoir of options and ideas, of paths that were not taken at the time but which demonstrate that what are often thought of as new ideas or radical departures from current ways of thinking or practices are not in fact unprecedented and therefore more thinkable than we may have thought. The concept of environmental justice may be relatively new, for instance, but this cause has been argued in Britain since National Trust co-founder Octavia Hill campaigned for more equal access to green spaces for residents of London's burgeoning East End in the late 19th century. In her essay, 'More Air for London', Hill logged the availability of these spaces across the city, establishing that residents of western London's more affluent neighbourhoods enjoyed access to nearly eight times as much open space as dwellers in the city's crowded eastern reaches (Hill, 1888).

As already indicated, direct experience of place is not always mandatory for the production of value. Imaginative literature, travel writing and television programmes of high quality can transport the reader to particular places. And it is enough, for some, to know that somewhere exists. Yet cultural knowledge and values are also inscribed in situ, in places and objects functioning as signifiers that must be directly experienced for encoded knowledge transmission to take place. What cultural anthropologist Tim Ingold refers to as the 'poetics of dwelling' and 'dwelling perspectives' (Ingold, 2000: 21, 89) are typically conveyed by AH researchers through (usually non-fictional) stories of lived experience drawn from the present and the past.

US environmental historian William Cronon, for instance, recounts a tale about the multiple values of mountain cranberries. Early twentieth-century berry-picking by a Scandinavian-American girl near the copper mining settlement of Kennecott, Alaska, did not mean the same thing as the identical physical activity carried out a few years earlier by an Ahtna Indian girl, before the copper boom and Euro-American arrival. Both girls undoubtedly enjoyed eating berries on the spot. For both, though, the main purpose of the exercise was to bring berries home to their mothers. The 'good' that these

¹¹ Beyond Britain, the relationship between cultural landscape research and work on the cultural aspects of ES has been investigated by a team at the Ecosystem Research Institute, University of Freiburg, Germany (Schaich, Bieling and Plieninger, 2010; Bieling and Plieninger, 2012).

particular berries provide is also the same for both cultures: they ripen late and are easily preserved. Still, there are significant differences. Whether consumed fresh or dried, the berries the Euro-American girl picks are destined for a pie. They are not a staple food. Moreover, they will lose their autonomy as they become a component of a pie reliant on ingredients sourced from far away: butter, sugar and flour. And for the Indian girl's family, the cranberries also represent medicine and a dye for colouring clothes as well as a basic source of sustenance (Cronon, 1992: 47-48).

Stories of the land can support claims on the land, as suggested by the book title, *If this is your land, where are your stories?* (Chamberlain, 2003). However, Cronon's purpose is not to pit indigenous values against - or raise them above - Euro-American values. And whether the society and culture in question is 'native' or 'western', it makes little sense to separate the making of a living off the environment from the imaginative construction of that environment, because 'the identification, use and care of resources is in the end a problem of human values and behavior' (Thomas, 1956: xxxvi).

Danish anthropologist Kirsten Hastrup examines how early modern Icelanders demarcated two places: the proper area for human work and intervention (essentially the infields of crofts and farming) and a fundamentally alien outside (including the high fells and seas). This cognitive (mental) framework meant that, despite the onset of increasingly severe agricultural crisis, what might appear to be obvious natural resources to later generations were not exploited because they were thought of as being located beyond the area where people could usefully shape their surroundings and draw on what it had to offer. The activities of Icelanders that moulded the land's material contours were the expression of a mental framework that constrained their notion of what and where 'the environment' was (Hastrup, 1990). Historical perspectives deepen our awareness of how what we think about nature, how we structure what we think and what we value in nature as a result shapes environmental behaviour.

If values of any kind are poorly understood if divorced from the temporally and socio-culturally specific practices that engender and fashion them, then place is a shaping agent of equal force. Processes operating over time convert spaces into places. 'Place is space', observes Walter Brueggemann, 'that has historical meaning, where some things have happened that are now remembered and provide continuity and identity across generations. Place is space in which important words have been spoken that have established identity, defined vocation, and envisioned destiny' Brueggemann, 1977: 10). 'What matters' in environmental valuation, explain O'Neill, Holland and Light (2008: 153), 'are particular beings and places constituted by their particular histories'. Studies of past ecologies are also essential to the setting of realistic targets for restoration ecology based on reconstructed profiles of ecosystem functions. An historical perspective also allows us to ascertain the character and extent of the services, goods and benefits that have been lost or eroded over time' (Jackson and Hobbs, 2009: 568).

The importance of storytelling as a powerful way of knowing is increasingly recognized by scientists. In fact, Mike Hulme recommends that the practice is raised to parity with 'fact-finding' (Hulme, 2011: 178). A particularly timely example of story-telling – and story-gathering - is 'Creative Climate', a ten-year project launched in 2009, which invites members of a global public to contribute stories to help track humanity's response to the challenges of climate change. Collectively, these stories are intended to grow into a 'living archive' of ideas and experiences. The project is collecting thoughts and stories – individual, group and institutional - 'from doorstep to workplace, from lab to garden; from international conference to community meeting – from all over the world'. Participants are also encouraged to submit empathetic stories 'on behalf of some thing or some place: a street; a

glacier; an insect'. Hundreds of diary entries from across the world have already been assembled and are available for examination and distribution via a 'share button' (Creative Climate, 2009).¹²

Popular responses to the extreme weather events (including flooding, drought and storms) that are a distinctive aspect of climate change is the focus of an AHRC project (2013-16) led by Georgina Endfield at the University of Nottingham, with co-investigators at the universities of Aberystwyth, Glasgow and Liverpool. 'Weather Extremes' (full title: 'Spaces of Experience and Horizons of Expectation: The Implications of Extreme Weather Events Past, Present and Future') builds on two previous AHRC projects, 'Weather Walks and Weather Talks: Exploring Popular Climate Histories and Futures' and 'Snow Scenes: The Role of Place in Popular Weather Memory', and is pursued in conjunction with the Royal Geographical Society-Institute of British Geographers, the Met Office ACRE Initiative (Atmospheric Circulation Reconstructions over the Earth) and English Heritage. Drawing on oral histories and a wide range of archival materials that extend beyond official meteorological observations (including sermons, diaries and photographs), and working with case studies of 'at risk' communities across England and Wales, 'Weather Extremes' examines various storytelling media – narratives, folklore, myth, legend and poetry – to create a database of memories stretching back to circa 1700 that records changes in the perception of risk and vulnerability at local and regional levels, as well as in efforts to improve resilience. In addition to providing a clearer and more complete picture of the frequency and duration of extreme weather events, and how responses to them have become culturally inscribed, this database aims to highlight the diversity of social responses and memories: how individuals and communities remember the same event differently.¹³

Other storytelling work addressing climate change more explicitly deploys the arts and humanities to engage with and inform policy making. Project 'ASPECT' (2011-12) was a collaboration between storytelling researcher Mike Wilson at University College Falmouth, in partnership with the University of Glamorgan, White Loop (a digital media consultancy), and the Department of Energy and Climate Change. Working with individuals and communities in central London, Bridgend (Wales) and St. Ives (Cornwall), this pilot project sought to engage communities that were hard to access with traditional modes of communication to examine how digital storytelling can facilitate wider and deeper public dialogue with momentous but hitherto rather inaccessible issues such as the debate over climate change (<http://www.projectaspect.org/>).

Closely related to stories are narratives.¹⁴ To explore further the power of narratives and storytelling as a tool to improve understanding of human relationships with ecosystems, UNESCO and the

¹² An international, not-for-profit organization in the vanguard of artistic responses to environmental change is London- and Toronto-based Cape Farewell (2001), which works with scientific and cultural institutions to provide an innovative, multi-arts programme of public engagement activities to communicate the urgency and enormity of the global challenge of climate change: <http://www.capefarewell.com/about.html> A leading light in the performative field that foregrounds the non-didactic exploration of climate change in theatrical settings is TippingPoint (2005), a network with the motto 'energising the creative response to climate change': <http://www.tippingpoint.org.uk/climate-theatre/>. See also Bradon Smith, 'Staging Climate Change: The Last Ten years' (2013), <http://www.tippingpoint.org.uk/wp-content/uploads/2013/08/Staging-climate-change-the-last-ten-years.pdf>

¹³ <http://www.ahrc.ac.uk/News-and-Events/News/Pages/Memories-and-responses-to-extreme-weather.aspx>;
<http://www.nottingham.ac.uk/research/groups/weather-extremes/index.aspx>;
<http://gtr.rcuk.ac.uk/project/C3FE9EDD-BB52-4C54-9C1D-FCBD56105CB0>;
<https://blogs.nottingham.ac.uk/snowscenes/>

¹⁴ This report is not the place to enter discussions about the difference between story and narrative. For some, the crucial difference is that, whereas the story is closed – it already has a beginning, middle and end – the

University of Versailles, supported by the French Ministry of Environment, held a series of international workshops (in Abu Dhabi, Brazil, France and South Korea) on 'Narratives of Change' in 2012. Central concerns of this workshop series (part of the Rio Forum on Science, Technology and Innovation for Sustainable Development) were how particular narratives reflect particular conceptualizations of the human-environment relationship, and how narrative/story-telling express the experience of environmental change (UNESCO, 2012).¹⁵

Narratives often impede social change. Inherited cultural understandings (witness Hastrup's study of Iceland) may fail to adapt to changed conditions. On the other hand, they can also facilitate change. The power of narrative is a component of resilience, a thought-resource that equips us to face challenges. The right kind of stories, for instance, may help persuade climate change sceptics to accept the reality of climate change. They can help bridge the divide between what happens 'out there' and our daily lives by reaching those parts of our minds that computer modelling and statistics cannot reach. Cultural phenomena potentially possess greater transformative power in terms of values and behaviour than raw scientific data.

Organizing data and events into a vivid, compelling and accessible narrative/story with a beginning, middle and end may offer a more potent educational tool than any number of computer-generated models – and this is a capability of which scientists are increasingly aware. The Natural Environment Research Council (NERC), for example, provides bursaries for doctoral students to attend story-telling courses, and, in 2011, the World Science Festival devoted a day to a multi-session exploration of 'Science and Story: The Art of Communicating Science across all Media' (http://worldsciencefestival.com/events/science_storytelling).

Arts and humanities researchers are not only good at telling stories about the past. They can also tell good stories about how we live now and how we may live in the future. Story-telling has a vital role to play in creating spaces within which alternative futures can be imagined. As the 'Narratives of Change' project declares: 'Sustainability cannot be achieved by thinking in purely technical or epistemic terms...Sustainability cannot be achieved without being imagined, and cannot be imagined without being inscribed in narratives' (UNESCO, 2012; Gersie *et al.* 2014).¹⁶This is a narrative *for*

narrative is still unfolding and open to participation; for others, the main distinction is that the narrative consists of a system of stories or multiple stories. What should be mentioned, though, in view of the widespread enthusiasm for narrative as an expression of values is a critical essay that queries the capacity of narrative accounts to elucidate value. Points raised include the distinction between the 'merely valued' and the valuable, the prevalence of 'bad' (as in bigoted, misguided and deluding) narratives in addition to 'good' ones, the emphasis even of 'good' narratives on valuations by humans, the need to develop 'evaluative standards', and the availability of metaphor, analogy and imagery as other ways of accessing values (McShane, 2013).

¹⁵ The value of storytelling is not restricted to its role as an educative and persuasive tool. As a fundamentally democratic art form, storytelling is also valuable as a potentially egalitarian site for discussion; as a means of examining and perhaps even embracing multiple, ambiguous and contradictory 'truths'; and for incorporating previously unheard voices. I thank Mike Wilson for bringing these values to my attention.

¹⁶ 'Tales to Sustain', a group of storytellers, promotes sustainability through storytelling using tools such as the 'green tale'. A 'green tale' 'awakens, enlivens and touches the heart. It shows us who we are, where we come from and where we are going. It connects us to a local landscape and to the wider Earth. It strengthens our relationships to each other and to the wider Community. It may be a story of 'ordinary' people alive now. It may be derived from science and history. It could be a folktale, legend or ancient myth. It gives hope, wisdom

change as well as a narrative of change. Stories of past change can provide an intellectual-cum-cultural tool to help us 'imagine plausible environmental futures'.

As DeSilvey, Naylor and Sackett explain: 'We often do not have the cultural resources to respond thoughtfully, to imagine our own futures in a tangibly altered world'. They have coined the term 'anticipatory history' to explain how 'stories about the past can help publics and land managers to re-envision scenarios' (DeSilvey, Naylor and Sackett, 2011: 9; DeSilvey, 2012). In 'Imagining change: Coastal conversations', a film about AH approaches to understanding environmental change that featured the anticipatory history of Mullion Cove, on Cornwall's Lizard Peninsula, as one of its case studies, DeSilvey emphasizes the power of stories about change that has already occurred, accompanied by photographic evidence (which indicate that the harbour and breakwater that the sea is going to sweep away has not always been there), to help people with a deep cultural and emotional investment in the harbour to cope with its future absence: to embrace change and to counteract the automatic tendency to regard change as loss (AHRC, 2012).

and inspiration. It tells us the truth of how it is to be alive on the Earth now. It helps to sustain and restore the world': <http://greencanterburytales.org.uk/#/gathering-report/4560919488>.

6. Digital cultural mapping: a keystone activity for CES work

Stories can be related visually as well as orally and in print – and these visual media include maps as well as photographs. Mapping and map-works offer a powerful tool to capture the character and complexity of environmental settings and to provide a distinctive indicator of CES value. Mapping (a more elastic concept than cartography) is fundamentally about meaning and the environment, about what we care about in place, space, site, landscape and physical setting, and how these overlapping entities can be disclosed and represented. As a form of modelling, mapping is both metaphorical and material. Maps can combine and display a range of multi-layered information, past, present and projected, textual as well as pictorial. They can encompass cultural memory and possible scenarios (Read, 2012). Maps are a metric, indeed often technically sophisticated, whether on paper or in digital form. They are a form of practice, both scientific and artistic.

Mapping (and general locative media technology) occupies a position at the heart of the recent spatial turn in the arts and humanities and constitutes a key aspect of the emerging area of digital humanities as a whole. Mapping in the form of multi-layered GIS resources (some of it participatory) is becoming a core tool for analyzing and presenting information in ES research. To date, though, this work has concentrated on economic indicators related to tourism and recreation. Two case studies, involving east Africa and western Canada respectively, incorporate a stronger socially and culturally derived content dimension. In the first, Tanzanian example, through participatory and GIS tools, traditional, aesthetic and leisure-associated values of landscape were mapped in addition to subsistence-related values (the first three categories corresponding, in ES terms, to spiritual/religious, aesthetic and recreational values). Members of the Kigomani coastal community in Maternwe, Zanzibar, registered these values by marking with drawing ink on an aerial photograph the locations where these particular socio-cultural services were dispensed. The data recorded lend themselves to spatial and statistical analysis (Fagerholm and Kayhko, 2009). In the second example, which sought to map the ‘intangible’, ‘non-material’ cultural values of seascapes in northern Vancouver Island, British Columbia, participants assigned the highest tangible non-monetary values to places of significance for (in descending order) wildlife/biodiversity, outdoor recreation and cultural heritage; and the highest intangible non-monetary value to areas associated with spiritual value, inspiration and/or awe (Klain and Chan, 2012).

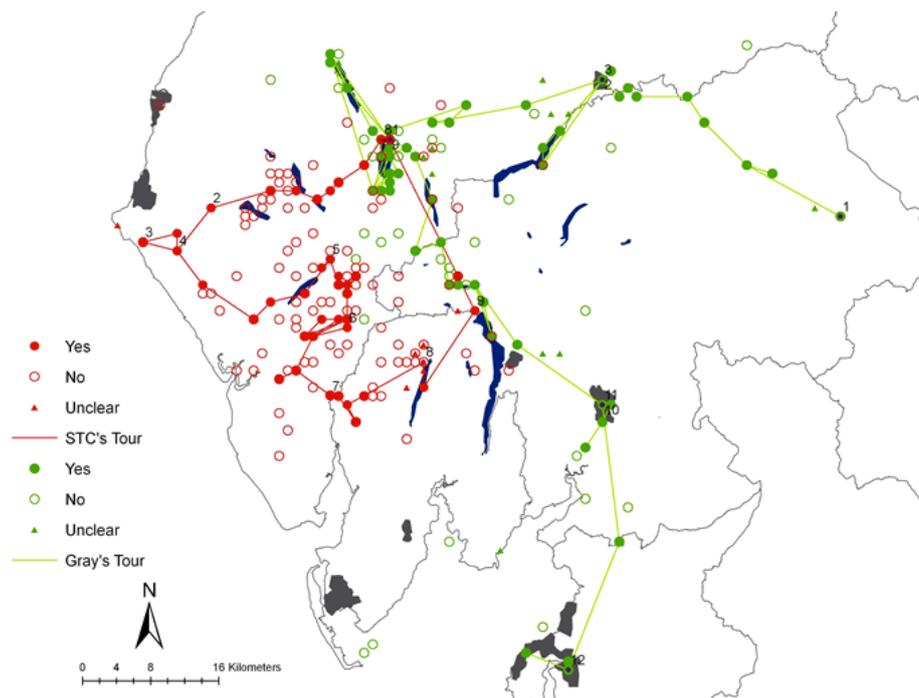
Current work in the ‘geo-spatial humanities’ explores how interactive mapping can serve both as research method and as a novel way of assembling and disseminating research findings. Prominent examples include a literary GIS project on the Lake District (University of Lancaster; British Academy-funded); the ‘Singing Landscape’ folk music maps prepared at county level for Hampshire, Gloucestershire and Somerset, which draw on the trips of folk song collectors a century ago (University of Bournemouth, with Gloucester Folk Museum, Hampshire County Museum and Somerset County Museums Service); Bristol University’s ‘Know Your Bristol’ and ‘Know Your Bristol Stories’ projects pursued interactively in conjunction with Bristol City Council and community organizations; Bristol University’s Quantock Hills ‘Fallen Fruits’ orchard decline mapping project (all AHRC-funded); the Bennachie Landscapes Project (University of Aberdeen; HLF/AHRC); and PlaceBook Scotland, a web-based project sponsored by Scottish Natural Heritage that allows contributors to express and share their views of special places through poetry, prose, artwork, photographs, video, sculpture, music and song.

‘Mapping the Lakes’ tests the potential of GIS to improve understanding of the imaginative literature of place and space. It takes two textual accounts of journeys through the Lake District landscape – Thomas Gray’s tour of the region in 1796, and Samuel Taylor Coleridge’s ‘circumcursion’ in August

1802 – and maps them in ways which invite considerations of the relationship between cartographic and literary representations of space, and the role of environment in the two writers' lives and texts (Cooper and Gregory, 2009 and 2011).

The project centres on the website, www.lancaster.ac.uk/mappingthelakes, which was designed to construct a spatial narrative by inviting the user to move through a series of increasingly experimental and exploratory cartographies. Content is divided into writer-specific, geo-specific and more broadly conceptual/theoretical material. The first 'Comparative Base Map' is a simple representation of Gray's and Coleridge's routes, showing where they did (and did not) intersect. The second 'Exploratory Map' draws a 'mood-map' of their emotional responses to the landscape, as expressed through their writings. The third category, 'Interactive Maps', uses Google Earth technology to visualize the movements of Gray and Coleridge through the Lake District landscape, linking texts and maps to the Google Earth view of routes through the Lakes. The project employed Google Earth as free technology that offered a spatial understanding of the region, as well as a fluidity and interactivity which complement the ways in which Gray and Coleridge documented their physical movement through the environment. 'Mapping the Lakes' goes beyond the 'fixed' configurations of traditional maps towards a more spontaneous, three-dimensional representation of landscape and literature for the user to navigate.

The three categories are intended to overlap and intersect, but through their separation also help to tailor the individual viewing experience, allowing a gradual acquisition of knowledge of the places and texts discussed, as well as entry into the current academic debates over spatial representations of texts. The difficulties attached to locative media and the limitations of the technology currently available (particularly Google Earth) are fully discussed, as are methodological challenges. The 'Mapping the Lakes' pilot project corresponds with Lancaster University's Wordsworth Centre for the Study of Poetry's research interests in the relationship between literature and landscape within a regional space famously described by Wordsworth as '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' (Wordsworth, 1974: 225). This project explores the representational and educational possibilities of literary GIS for a landscape that has been the setting and subject of countless writings since the two key Romantic texts on which it focuses. The Lakes' landscape may be a palimpsest where mountains, lakes, streams and views have been documented in multiple texts, but it continues to provide 'new' experiences. Digital technology, this project propounds, can offer novel interpretations of the landscape and its literature.



This comparative base map charts Gray and Coleridge's tours through the Lake District as recorded in their respective texts.

Figure 1. Comparative base map of Gray and Coleridge's routes through the lakes. ©Mapping the Lakes, Lancaster University

The 'Singing Landscape' project originated in 2006, when Somerset County Council funded the production of 20,000 Somerset Folk Maps, researched by C.J. Bearman and Yvette Staelens (Bearman and Staelens, 2006). The Somerset Folk Map took a plain representation of the county and annotated it with locations where traditional customs and their associated folk songs (for example, wassailing, Priddy Sheep Fair and Punkie Night, a local Halloween tradition) took place at various times of the year. The map and its text informs in multiple ways. It functions most simply as a map, by which the user can locate (and thereby attend) the events and customs it depicts. Yet it also serves as a source for a history of English folk songs and their collection. The map's second page follows the route of Cecil Sharp, who, over the course of thirteen years in early-twentieth century Somerset, visited 122 places to gather songs from 358 individuals. This part of the map connects some of those people to the places where Sharp met them, providing information about their lives and their musical involvement. It also details the impulse to collect and preserve folk music in the Victorian period, and provides information for people to get involved with today's folk events and groups. The Somerset Folk Map has secured recognition as a rich cultural and historical resource with mass appeal.

'Singing Landscape' (funded by an AHRC Knowledge Transfer Fellowship) then extended the folk map concept to Gloucestershire and Hampshire, in collaboration with Gloucester Folk Museum and Hampshire County Council Museums and Archives service. The project also continues work in Somerset, now in collaboration with Somerset County Museums Service. The application of the folk

map model to Gloucestershire and Hampshire affirms its utility for those seeking to locate and express songs (and, potentially, many other aspects of ‘intangible’ cultural production) within a specific locality (Staelens, 2011). In addition to producing more maps, the Singing Landscape Project aims to create and increase awareness of collected folk songs and dances in the west of England, and has the potential to stimulate more people to engage with this aspect of their heritage; the project hopes to encourage people to start their own enquiries into their local and individual folks song and dance histories (<http://www.ahrc.ac.uk/News-and-Events/Events/Pages/21st-March--9th-May-2009---The-Singing-Landscape-of-Somerset.aspx>;http://www.bournemouth.ac.uk/caah/culturalresourcemanagement/about_the_project.html).

The folk maps stand as fascinating documents in their own right. But as informative resources they also represent a previously overlooked element of British cultural heritage, and in a manner that affirms the role of folk songs and activities in the rich fabric of rural life. The maps situate the folk history of Somerset, Gloucester and Hampshire in particular places and, as importantly, in people who function as living archives. They set a precedent for future mapping projects to employ a local focus as a means to access and tell stories and histories with much wider significance. Their content places value on the processes of collecting historical materials, and explores ways in which they can be depicted effectively and made relevant to present-day, and future, communities.

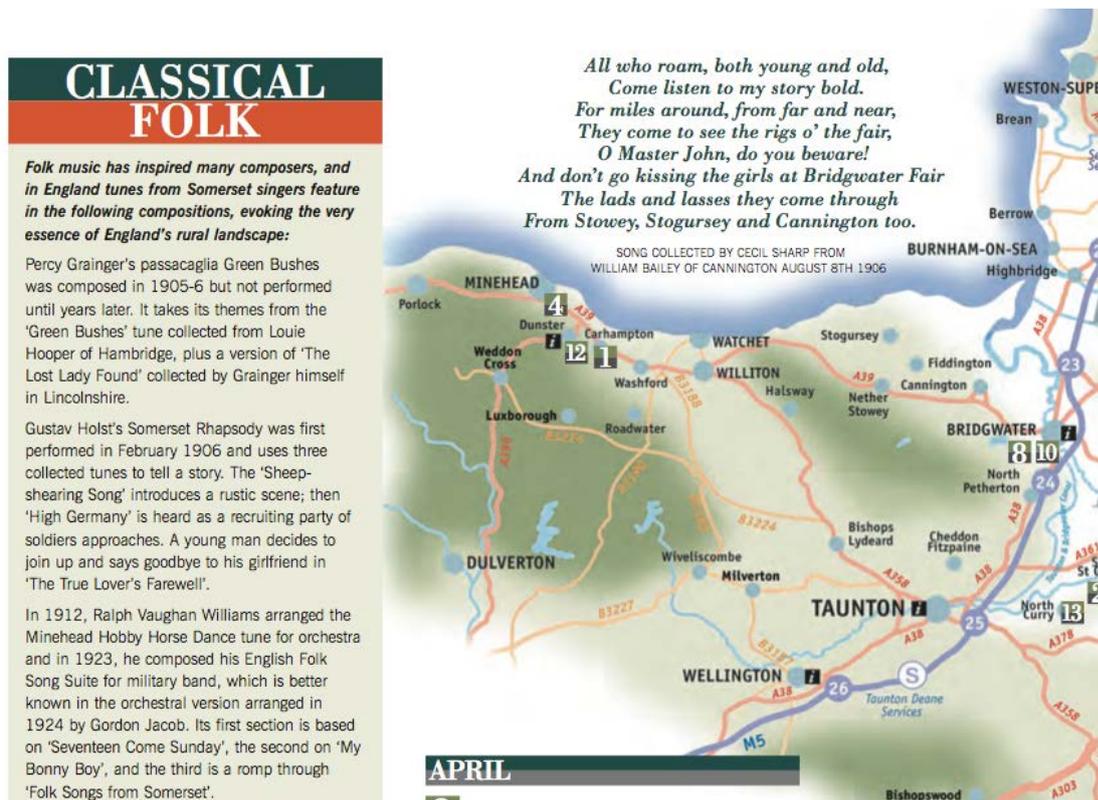


Figure 2. A detail from the Somerset Folk Map 2006 ©Bearman and Staelens/ Somerset County Council

The ‘Know Your Bristol’ project is a partnership between Bristol City Council and Bristol University’s History Department that set out to augment the “Know Your Place’ interactive website that Bristol City Council launched in March 2011. This open-access website allows people to explore parts of the city through historic maps, images and linked information. The collaboration was funded by AHRC’s

Connected Communities programme, and took the 'Know Your Place' concept out into Bristol communities through seven road shows at which residents were encouraged to share place-based memories, photographs, memorabilia and other artefacts. Bristol University's History Department amassed an extensive archive of material that was then used to enhance the 'Know Your Place' interactive map (University of Bristol, 2012). The web resource (<http://maps.bristol.gov.uk/knowyourplace/>) is the collaboration's lasting legacy; however, the process of engaging directly with local communities continued through a follow-on phase, 'Know Your Bristol Stories'.

One of the HLF-funded community group projects that provided a partner for 'Know Your Bristol Stories', was 'Orchard Roots Bristol'. The traditional and community orchard constitute a distinctive environmental setting that has not received much attention in ecosystem assessment exercises. This particular exploration of the history of an urban community orchard and its surrounding community focused on Horfield Organic Community Orchard (HOCO). Knowledge exchange was central to the project, with university-based arts and humanities researchers contributing their mapping and oral history skills and experience. A central outcome of 'Orchard Roots Bristol' was to engage local communities in their apple and orchard histories, which HOCO was able to do through its well-established annual Apple Day, held on site in October.

'Orchard Roots Bristol' and HOCO linked up, in turn, with another place-based project on orchard history ('Fallen Fruits') that Bristol's History Department had been pursuing in parallel, in conjunction with the team that manages the Quantock Hills Area of Outstanding Natural Beauty (AONB) in western Somerset (Bristol University, 45 miles away, effectively serves as this rural area's 'local' university). Apple experts from HOCO, for instance, assisted with apple identification and orchard knowledge on site visits to the Quantock Hills that were an integral part of 'Fallen Fruits'.

The objective of 'Fallen Fruits' was to map the declining orchard cover of the Quantock foothills. The first phase of mapping used twentieth-century sources to indicate a clearly visible orchard presence in the area in the first half of the century, and its swift decline since 1945. Map layers of different stages of orchard decline were created from the available historic data pieced together from old aerial photographs and superseded Ordnance Survey maps that was then overlaid on current OS maps and aerial photographs. These maps (prepared with MapInfo GIS software) are available for public consultation at the AONB Service office. The mapping resource is accompanied and supplemented by a report, 'Fallen Fruits: Mapping Orchard Decline in the Quantock Hills' (available through the AONB Service website) that also explores the significance of apples and orchards to local communities and economies (Dudley, 2012). This initial stage also identified early nineteenth-century tithe maps and apportionments as a rich but hitherto unexplored orchard resource.

The project's second phase (funded by the Quantock Hills Sustainable Development Fund and Bristol University's Lady Edith Smyth bequest for horticultural research), enabled another researcher to use tithe records to construct a set of map layers depicting orchards in the early nineteenth century. Based on this additional data, it was established that there were some 1,400 orchards in the area in the mid-nineteenth century. By contrast, data from phase one indicated just 11 orchards in existence by 2007 (Nourse, 2013). The second phase extended the historical scope of the mapping exercise by some seventy years, strengthened awareness of the former extent of orchard presence in the area, and provided more data to inform future consultation by the AONB Service with regard to land management and planning decisions, and for use within local parishes to support community orchard planting initiatives.



Figure 3. One of six display boards that presented the 'Fallen Fruits' project's research to the public on Quantock Apple Heritage Day, 19 October 2013. ©University of Bristol/Quantock Hills AONB Service

A third phase of the project, to disseminate the research findings more widely and through innovative means, was facilitated by AHRC follow-on funding. This final phase culminated with the first Quantock Apple Heritage Day (held at Fyne Court, Broomfield (a National Trust property and AONB Service headquarters)). The event (19 October 2013), which brought together local apple growers, fruit tree nurseries, community orchards and cider collectives, apple experts (who provided an identification service), and poets with local, regional and national reputations, attracted an estimated 600 visitors (Coates, 2013). The occasion also gave the project team a platform to display its research to a large local audience in a visually appealing way, and to gather an extensive collection of site specific apple, orchard and cider memories and stories.

In association with Quantock Apple Heritage Day, the 'Fallen Fruits' project as a whole was publicized through local radio broadcasts and attracted extensive coverage in local press and specialist food and gardening magazines. This multi-phase project offers a template for developing a working relationship between university-based AH researchers and outside organizations built on the foundations of shared interests and follow-on funding schemes, that marries arts and

humanities research with local, place-based priorities to add to the storehouse of examples of place-based cultural ecosystem benefits.

The development of the 'Know Your Bristol' and 'Fallen Fruits' projects demonstrates the evolving nature of collaborations between university-based AH researchers and external partners. Through AHRC and HLF funding, the projects were able to maintain and extend existing links as well as cultivate new partnerships over a period of two to three years. Maps formed the initial foci and were among the central outputs, but the projects' momentum was sustained by associated community engagement events. This series of projects explored the avenues open to university and community collaboration for acquiring, sharing and enhancing knowledge and awareness of cultural values rooted in place and landscape, urban and rural, in imaginative ways.



Figure 4 (left) and Figure 5 (right). HOCO member Shannon Smith (left) presents the results of 'Orchard Roots Bristol' research, on site; while members of the public learn more about their local orchard history and apple varieties at the HOCO open Apple Day (20 October 2013). ©Jamie Carstairs, 2013.

Another instructive example of site-specific research with mapping at its core (part of the cross-Research Council, AHRC-led 'Connected Communities' programme) is 'Memories of Mr Seel's Garden: Excavating the Future of Local Food in Liverpool'. This project was inspired by a vegetable garden in the city's Toxteth area, whose site is now occupied by Liverpool ONE's Tesco Superstore. On one of the store's walls, a plaque reveals how the neighbourhood was once devoted to market gardens. The plaque reproduces an eighteenth-century map of the area which explains that the supermarket site was formerly the garden of a local merchant, Mr Seel: 'you are standing on what was the garden, represented by an asterisk'. Raising local awareness and improving knowledge of how food was sourced in the area in the past (through archival research into written and visual records and oral history interviews), and working with local food groups, it is hoped, will inspire ideas for growing more food locally. An on-line food map of the area illustrates how sites of production have shifted over time, with searchable categories that include orchards, dairies, pigs, chickens, markets and allotments (past and current) as well as 'the future?'. The stories gathered as part of the associated oral history project have also been brought to new audiences through food theatre and food poetry (www.mrseelsgarden.org).

A further Connected Communities project, this time in Scotland, is 'Wester Hailes Social History Walks' (QR-coded, designed by the Wester Hailes Health Agency and part of Edinburgh University's AHRC-funded 'Community Hacking Project' (www.communityhacking.org)). This series of walks around an estate built on farmland on the edge of Edinburgh (1967-74) is explicitly intended to

promote health and wellbeing among local residents and includes a feature ('Walking through Time') that allows users, through GPS, to view historical maps of the area they are passing through on mobile phones. Shifting the focus to northeast Scotland, the Bennachie Landscapes Project (an HLF 'All our Stories Scotland' initiative/AHRC Research for Community Heritage Development Award, based at Aberdeen University) is a site specific micro-study that pivots on the best known range of hills in northeast Scotland, pursued in collaboration with the Bailies of Bennachie, a voluntary group that has cared for the area since 1973 and also undertakes to collect and preserve literature, including ballads, legends, poetry and prose, as well as art and music concerned with the hill and its environs (also to encourage new writings inspired by the hills). The strengthening of community cohesion based on the distinctive imprint of place and landscape (through work with local schools, for instance) is a prominent ingredient of the archaeological and historical investigation of the Colony Site, a nineteenth-century crofting settlement on the mountain's lower slopes (<http://www.bailiesofbennachie.co.uk/bennachie-landscapes/>).

The final example, Placebook Scotland, departs from the previously discussed models of university-community collaboration backed by research council funding. It was conceived in 2008 by Scottish Natural Heritage, with assistance from the National Trust for Scotland, members of the Scottish Landscape Forum, and Learning and Teaching Scotland (now Education Scotland), with funding from Scottish Natural Heritage and the Scottish Government. Alongside the pre-selected places identified by the project as particularly interesting and inspiring sites, there is a strong participatory element. Users can register with the site to create a My Page, thus establishing a sense of direct involvement and a stake in the project, and encouraging the addition of fresh content. Future content is therefore user-led, creating an evolving online resource and an active 'community' brought to the site through sensibilities held in common of landscape appreciation, history, geography, and the creative outputs they inspire. The contributions are plotted on the Placebook website's interactive map of Scotland (<http://www.placebookscotland.co.uk>). UK NEAFO WP6 (Shared, plural and cultural values) also employed participatory GIS as a research method for the local case study on the Inner Forth.

What these various individual projects have in common is that they have all employed established and new media to research the relationships between landscape and creativity, places and people, environment and society. They have innovatively approached the presentation and dissemination of research, deploying interactive and visual tools to reach beyond the academy and/or professional bodies to engage with other communities. In these projects, mapping unites the method and the output, offering a means of negotiating understandings of place that reflect the dynamic relationship between place, time and people. The mapping and other aspects of research collected here offer multiple histories and levels of knowledge that can be explored in non-linear ways and act as routes to new sources and ideas. The range of subjects and partnerships given as examples testifies to the potential for this way of working to influence future research into the complex connections between environmental heritage and environmental futures, in a meaningful manner that engages with communities and encourages inclusive outputs, in that they are publicly available, visually accessible, and not obscured by technical language or assumed prior knowledge of theory and discipline.

A site-specific project not involving mapping is St. James' Heritage and Environment group (working with Durham University as part of 'imagine: connecting communities through research') that produced a film and walking trail centred on a historic graveyard (an underappreciated category of environmental setting) in Newcastle (<http://www.imaginecommunity.org.uk/project2>). There are additional creative precedents in the growing field of locative media, and in various apps produced by artists and others in and for specific places, such as the 'Romantic Litscape' project embedded in the Quantock Hills (Hoyte, 2013; see also Myers, M., 2011).

At the moment, though, these applications of digital cultural mapping tend to be self-contained within the arts and humanities sector (compilation of a spatial index of these various projects would certainly be a valuable exercise). Nonetheless, it is possible to imagine a shared technological platform that would allow those from diverse (and sometimes divergent) disciplinary perspectives - across the arts, humanities, social and natural sciences - to pool their knowledge in a kind of cartographic commons. Such a resource would substantially thicken the AH contribution to ES research, providing content (both imaginative and empirical, retrospective and prospective) that could be considered in tandem with information about biodiversity and water quality, species distribution and development pressures.

This kind of collaborative cartography might also help avoid the ghettoization of AH research on ES into an area that is designated as specifically 'cultural'. A tool that assumes that use and 'non-use' (or material and 'non-material') values, goods, benefits and services are overlaid and interdependent opens up the possibility that AH scholars may have something to say about how culture affects our perception and consumption of 'provisioning', 'regulating' and 'supporting' services as well.

This new mapping work could usefully model itself on English Heritage's Historic Landscape Characterisation (HLC) process, which sets out to represent time-depth in landscapes by deploying techniques from archaeology and landscape history to identify their 'essential or distinguishing features and qualities'. HLC is already used extensively in planning and decision-making contexts, particularly when contemporary deliberations require some understanding of patterns of change and continuity. As Peter Herring (2009: 64) explains: 'HLC takes systematic representations of landscape components like boundary and land use patterns and uses transparent processes of assessment and interpretation to abstract or characterise the essence of the history that established the form of the present-day world'.

Herring acknowledges that some find HLC's practice of simplification, grouping and classification overly reductive. But it is precisely these qualities that would make HLC's GIS databases legible and potentially useful to those mapping ES and looking for smart ways to weave cultural content into their representations. (English Heritage is working to bridge the gap between the cultural and the natural by adding a section on historic landscape character to each of Natural England's National Character Area statements, which are currently undergoing revision.) Integrated into ES research, HLC might provide a gateway for other AH-inspired mapping approaches – approaches resistant to the cartographer's tendency to tidy away 'the more revealing messiness of the world they set out to represent' (Herring, 2009: 70) - that emphasize complexity, particularity and multi-layered (and multi-sensory) richness of meaning and usage, incorporating any number of features, such as tranquillity, dark skies, iconic species and foods (e.g. cheese, cider), or 'hot spots' for landscape photography (DeSilvey, 2013a & b).

Via interactive, web-based platforms like PlaceBook Scotland's, anyone can now contribute content freely - photos, text, videos, artwork and audio material - and creative GIS applications allow for storage and sharing of content. AH disciplines are certainly favourably positioned to design participatory mapping research that uses these kinds of tools to ask about which places and ecosystems matter to different people, and why. The outcome of this work could represent an updated version, suitable for the twenty-first century, of Common Ground's England-wide parish/neighbourhood mapping initiative. This pioneering example of community and socially engaged arts practice represented a happy fusion of the participatory (amateur in the best sense of the word) and professionally expert (Crouch and Matless, 1996). Launched in the 1980s and covering urban as well as rural areas, Common Ground's mapping exercise encouraged members of

communities to coalesce and chart the everyday and commonplace things and places – the specific topographies - that they valued in their immediate surroundings: one of the best known and biggest examples was West Sussex County Records Office's Parish Maps project, which, since 1998, with the assistance of more than 2,000 volunteers, has created more than a hundred maps.¹⁷ In its most developed guise, this approach takes the form of 'deep mapping' (Biggs, 2010), whose product, the 'deep map', has been characterized as follows (Pearson and Shanks, 2001: 64-65):

Reflecting eighteenth century antiquarian approaches to place, which included history, folklore, natural history and hearsay, the deep map attempts to record and represent the grain and patina of place through juxtapositions and interpenetrations of the historical and the contemporary, the political and the poetic, the discursive and the sensual; the conflation of oral testimony, anthology, memoir, biography, natural history and everything you might ever want to say about a place.

To give this mapping work an applied dimension, a potentially rich and illuminating ecosystem feature/environmental setting that commends itself to us is the river basin/valley/catchment. This choice has the advantage of aligning with various international initiatives, among them China's Yellow River (ArcNews online, 2010) and the first digital map of the world's rivers (Black, 2010). Such a project would also offer a contrast to the computer-based and heavily quantitative modelling system, InVEST (Integrated Valuation of Ecosystem Services and Trade-offs) - part of Stanford's Natural Capital Project – whose initial applications were to the catchments of the Willamette and Amazon.

This fluvial mapping project would draw on a rich AH tradition of representing 'liquid landscapes' - rivers, estuaries, coasts and hydrological systems. It would also extend the reach of public events and artworks related to rivers, the first of which, in the UK, aimed to help Londoners 'find' London's 'lost' rivers. 'Still waters: Re-imagining London's rivers' consisted of various public events and artworks in May 1992 on four Thames tributaries in inner London: the buried Fleet, Effra and Walbrook, and the degraded Wandle. Employing interviews, performance, dowsing, walks, public meetings, and advertising and marketing techniques, and involving an economist, clinical psychologist, sculptor, artist, writer, teacher, 'Still Waters' was designed to raise local consciousness of the historic and cultural importance of London's buried natural liquid assets (<http://old.platformlondon.org/otherprojects.asp#stillwater>).

For the more recent digital project, 'Mapping London's Subterranean Rivers' (2010), Sandra Crisp used 'modelling, motion dynamics, intense colour/texture and found visuals...to visualise the city as an intricate organic system built upon labyrinthine liquid networks and underground channels: A hybrid view of the city where historic and ancient natural elements form a contemporary and complex digital network'. The 4.34 minute feature allows the viewer to fly through a 3D map of London, encountering the hidden sites of ancient and subterranean rivers (such as Counters Creek, the Fleet, Neckinger, Quaggy, Tyburn and Westbourne) based on data from old maps and books such as Nicholas Barton's *The Lost Rivers of London: A Study of their Effects upon London and Londoners, and the Effects of London and Londoners on Them* (1962) (<http://sandracrispart.com/wp/index.php/mapping-londons-subterranean-rivers/>). A river-focused project of the sort suggested would build on this recent work to reinstate rivers both physically and

¹⁷ Another prominent early example of commitment to 'specific to place' community artwork – though working with stories rather than maps per se – is the activities of Welfare State International (1968-2006), whose activities took art out of galleries and theatres onto 'the street'. One of the group's most recent activities, 'Bay Tales', part of the three-year 'Longline' project (2003-06), explored mythology, ecology, people and industries in the Morecambe Bay area of northwest England: <http://www.welfare-state.org/baytales/index.htm>. I thank Mike Wilson for drawing my attention to WSI.

in terms of public (non-)awareness of concealed watercourses (Wild, 2011). It could help shape new forms of knowledge and belonging, of and to 'catchment', for example, as well as reconfiguring customary identifications with town or country, creating 'new' nature – and shifting the terms of the debate from defending what remains of natural capital assets to increasing the supply through rehabilitation.

This type of mapping project also possesses a much wider potential legacy. If arts and humanities scholars were to work with researchers from other disciplines they might be able to encourage them to think more critically and reflexively about the way they do their own work. Conversations would inevitably occur about the work that goes into gathering 'data' and deciding what information to include on the map and what to omit. ES maps could be designed to make visible the process of making knowledge, contextualizing their own creation (Herring, 2009: 70). There are profoundly different ways of making knowledge – AH researchers think that social scientists and natural scientists work in mysterious ways; they also probably think that AH work in mysterious ways - and it is hard to overstate the importance of making work and methods legible to others.

The process of working across disciplines on mapping projects, fully attentive to the limitations of mapping and alert to the mapmaker's unavoidably selective truths, could be effective as a way of inviting dialogue and engagement, demystifying and democratizing the work of scientists as well as of AH scholars. In particular, the techniques of mapping and cartography might be employed to carve out a fruitful 'middle ground' where cross-disciplinary research can be carried out without compromising the epistemological principles of the sciences, social sciences or arts and humanities (Anderson, et al, 2009; Harris and Tewdwr-Jones, 2010; Schaich, Beiling and Plieninger, 2010). In a more applied sense, these mapping exercises and their outcomes could help with the following tasks: prioritizing areas for conservation; managing access; improving understanding of distributive impacts (winners and losers; environmental justice); informing planning consultations and policy/project appraisals; and, generally, supply a richly textured body of evidence for the cultural value of environmental settings.

7. Future AH contributions to CES research: challenges and potential

This section complements the previous section on case studies of applied AH research in the area of CES with a more open-ended review of the various ways in which AH perspectives and approaches can inform future research on cultural services of ecosystems by engaging with fundamental issues and posing basic questions.

Given the paramount importance, generally acknowledged, of ‘spatio-temporal particulars’ (O’Neill, Holland and Light, 2008: 153; O’Neill and Holland, 2003) in the valuation and study of environmental settings, a more general measure of CES value across ecosystems, regions or nations is hard to provide. Scale presents a basic problem confronting the desire to ‘operationalize’ the values that inform CES or to extract indicators. Ecosystems and landscapes alike can range from the large to the very small – and so can the scale of the services they provide.

The climate regulation service that the Amazon rainforest supplies, for instance, is global in scale. As Tallis and Polasky emphasize, ‘trees fixing carbon...are providing a benefit to you as you read this chapter, no matter where you are in the world’ (2009: 272-73). Cultural values can also be global as well as specific to particular localities, with ‘existence’ valuations particularly evident at the global level, as in the importance placed on endangered species survival and genetic diversity as cultural goods. On the other hand, the scale of cultural valuations of nature can be microcosmic and the benefit provision intensely parochial, pinned, perhaps, to a single entity such as an individual tree. At the York workshop on aesthetic and spiritual responses to the environment (January 2013), there was discussion of the attachment of personal meaning to individual ecosystem components. Has a tree that has become a specific site of personal remembrance for the family of a teenage driver who crashed into it - by having flowers attached to it, and renewed on a regular basis - become a tree of higher value than the visually and biologically identical adjacent trees? A different, but related example is that of the single arboreal specimen invested with enormous symbolic value and yielding benefits of a shared rather than individual nature: the iconic (or veteran) tree such as the Tolpuddle Martyrs sycamore in Tolpuddle, Dorset (Pakenham, 2003: 110), or Newton’s apple tree in Grantham, Lincolnshire.

Despite these limitations and complications, there is much to be said for the case study approach, working with an aggregated unit such as a Landscape Character Area that remains suitable for the aforementioned digital cultural mapping – as demonstrated by the local study for UK NEAFO (WP5) of the North Devon Biosphere Reserve (Fish, Willis, Preston and Smith, 2013; Church *et al.* 2014). This approach remains particularly appropriate given the obstacles that benefits transfer methods face in the application of individual case study evidence across a range of heritage assets, whose distinguishing characteristic is heterogeneity rather than the homogeneity to which value transfer is best suited (Economics for the Environment Consultancy [Eftec], 2000: 18-31, 78).

A pioneer in the field of ecological economics noted that a major problem those involved in MA encountered was that ‘what they had learned in one ecosystem did not easily translate into another ecosystem, even if it seemed to be a quite similar ecosystem’. What muddies the waters, he emphasized, is cultural and historical complexity: ‘the literature across seemingly similar ecosystems indicated many more differences than expected, many of them due to different histories of human influence’ (Norgaard, 2010: 1221). According to different scales of value, environmental change constitutes progress/improvement, despoliation or necessary sacrifice. And just as different people at different times and in different places understand ‘environment’ and ‘environmental change’ differently, different people at the same time and in the same place also understand them differently. There may well be no alternative to the commissioning of a host of individual studies

(including digital mapping projects) to the end of building up a databank extensive enough to capture the full spectrum of ecosystems, environmental settings, landscapes and places that supply CES.

This may be inconvenient from the standpoint of policy formulation and implementation, but it plays to the strengths of AH researchers. While many AH scholars rightly emphasize philosophical reflection and political critique, their domain also embraces practice and action, including mapping projects, exhibitions, documentary films and site-based performance, as they engage directly with the physical world and its meanings. As the examples discussed in the previous section indicate, AH researchers work most effectively with specific examples of places, landscapes and ecosystems, as well as with their individual ingredients. In these contexts, the arts and humanities are addressing concrete, useful and measurable values through a growing number of down to earth, eminently tangible and deeply material practices and engagements with land managers and environmental practitioners.

As well as paying heed to scale and non-substitutability, CES researchers must approach the notion of value in sociologically and ethically sophisticated ways: value to whom, precisely? Issues of environmental justice arise where green space needs to be more highly valued if it is to benefit socio-economically deprived communities, which – as Octavia Hill recognized - are arguably those in greatest need of the mental, physical and spiritual benefits of green space. Intergenerational equity should also be taken into account.

The question of value to whom should also be reframed in terms of value to which species. As currently formulated, the notion of ES often implies a human demand and a human beneficiary. Ecological functions are intermediate services in that they are not directly consumed by people, and are only converted into 'final' services in the event of human 'take up'. In fact, Tallis and Polaski argue that, without a human demand, there is no service provision (and therefore no beneficiary), just a biophysical process representing a potential supply of service: 'the presence of clean water that could not be consumed is not a service unless there is someone there to drink it. This does not mean that a natural system providing clean water in a remote area with no people does not provide any ecosystem service. But if no one currently makes use of the water for drinking, then there is no provision of that ecosystem service in that particular place at that particular time' (Tallis and Polaski, 2009: 272-73). From this perspective, an ecosystem service represents a supply combined with a human demand.

This might be regarded as an argument against intrinsic value: for value is always value *for* (instrumental), rather than something in and of itself, regardless of benefit for/to others. Yet it is not strictly true that intrinsic value has nothing to do with individual or group preference. We should distinguish, as Holmes Rolston III does, between anthropocentric intrinsic value and non-anthropocentric intrinsic value (Rolston, 1994). Expression of a preference for a law that protects a species, regardless of whether it benefits humans in any way, is an example of anthropocentric intrinsic value. We must also appreciate that existence value is not the same thing as intrinsic value: existence value entails a human benefit in the sense that knowing that a species exists involves the satisfaction of preference, regardless of whether the value involved is use or non-use (Kenter, 2013). And the very notion of intrinsic value is yet another example of how we impose value onto nature, of how it is always people that are doing the valuing: 'only an ant knows its intrinsic value, for example. How could we possibly know?' (Waters, 2013). At the same time, how do we know that the ant knows? How can we be sure that all living things are self-valuing? (Callicott, 1995).

Another term for non-anthropocentric intrinsic value is biocentric value, which is often associated with a (post-humanistic) worldview based on ethical restraint that stresses existence rather than experiential value. Biocentric value is an example of what are also known as other-regarding values, those which attach significance to the wellbeing of others (including non/other-than-humans) and have regard for the moral standing of others, and may also be characterized as (humanistic) altruism or biospheric altruism (WP6 Report: 30,74,119). In principle, as the sphere of ethical consideration (the ethical envelope) expands and judgmental and discriminatory 'speciesism' recedes (Singer, 1975: 223-60), certain species stand to benefit. Creatures previously considered unattractive, unpleasant and annoying at best, and downright ugly, frightening and dangerous at worst, such as slugs, mosquitoes, rattlesnakes and alligators, are invested with the same value as those species we like, admire and identify with.

Alternatives to dominant current modes of thinking also extend to how we belong to a place as much as place belongs to us (Snowden, 2000). The thinker with whom this notion is most closely associated is still Aldo Leopold, whose 'land ethic' approaches land (by which he meant the ecosystem) as a community to which we belong, rather than a commodity that belongs to us. Leopold (1953: 146-47) also maintained that 'the last word in ignorance is the man who says of an animal or plant, "What good is it?" If the land mechanism as a whole is good, then every part is good, whether we understand it or not'.

Taking our cue from Leopold, a related consideration is whether the current notion of who benefits from ecosystem services should be broadened to encompass other species. Unpolluted water benefits many species, and is just as important for otters as for the humans who wish to drink it or swim in it. Similarly, polluted water affects many species, including our own. Birds also benefit from trees in an instrumentalist fashion. The provision of a nesting site represents a supporting ecosystem service for birds. Widening the remit of ES exercises to encompass their value to the needs and wellbeing of other species in sensible ways is a task that environmental ethics and the freshly stirring arts and humanities discipline of Human-Animal Studies could usefully undertake.

At the very least, the prevailing sense of landscape can be re-animated by incorporating the notion of animal landscape (animalscape) (Philo and Wilbert, 2000; Matless, Merchant and Watkins, 2005; Roe, 2013), which can be defined as a place where the animal presence significantly defines occupancy, land use, character and identity. Natural England's 'Experiencing Landscapes' report explained how a sense of place can be 'delivered' by the presence of wildlife (citing the red squirrels of Cumbria's Eden Valley). Otherwise, the role of wildlife (which is not restricted to the status of iconic (charismatic) animals as indicator species) has occupied a low profile in CES research (UK NEA, chapter 16, 27, 29, 52; Stibbe, 2012a).

This is one example of how AH scholars can contribute to ES research with a constructive critique of the foundations of ES, which for all its current academic ascendancy and political clout, is a relatively recent conceptual innovation. Another area worthy of attention is the assumption embedded in the existing language and conceptual framework of CES that all of nature's contributions to people are positive. Yet the impact of nature (particularly natural forces) on culture and society can be damaging or double-edged. Flooding, for example, can displace a community, but also foster the development of social capital and cohesion by mobilizing community spirit and reinforcing community resilience. The notion of ecosystem dis-services should also be taken into account (with more studies of willingness to pay to *prevent* a particular outcome).

Moreover, it bears repeating that the services nature provides to us are not necessarily good for nature itself. A particularly valuable and long-standing supporting service is the environment's role as a 'sink' for our waste products, from the relatively benign night soil of medieval cities (which

involves nutrient recycling) to the late twentieth-century's century's ignominious nuclear waste (which does not). And we should not overlook an urban green space's value as a place to 'empty the dog' (to quote the graphic phrase of a participant at the York workshop), nor American writer and ecoactivist Edward Abbey's quasi-ironic characterization of 'Nature' as 'mainly a good place to throw beer cans on Sunday afternoons' (Abbey, 1989: 83). Another question to be considered is: at what point does the provision of a cultural service cease? If the quality of water in a river declines beyond a certain level, will that river lose its inspirational qualities? Or, if a place that is highly valued experiences some other form of change that is perceived as loss, can we still engage with it in its new state in some way, or does a sense of loss (even grief) preclude a return? (Brady, 2013b).

This critique from an AH perspective can also profitably look at the strengths and weaknesses of the frames, models and metaphors that comprise the ecosystem assessment process. Despite its influence among planners and policy makers, ES remains a metaphor and, like all metaphors, has advantages and disadvantages: it both reveals and obscures aspects of reality. AH approaches can identify the disadvantages of a metaphor in particular situations and for particular goals. They are also fruitful in finding ways of mitigating the disadvantages through adapting the metaphor or using it in conjunction with alternative ways of constructing reality. Not least, AH perspectives can look for fresh metaphors in instances where the original ones clearly do not work.

AH approaches, not least, can question the content of the four categories of ES and the delineations between them. For example, whether mental and physical health benefits should be included under the heading of cultural services is open for discussion. It could be argued that these are more appropriately considered as more direct ecosystem services like provisioning, since they qualify as absolute essentials just like food and medicine. Yet an equally strong case can be made for culture as a fundamental human need. The notion of multi-sensory engagement with 'the natural' as a cultural ecosystem service also merits a fuller definition; just as objects that are the product of human creation do, natural entities engage us in many ways and at many levels at the same time.

Instead of simply measuring or recording the values that reside in environmental settings and spaces already highly prized according to cultural norms, AH approaches can play a more active role: they also have the capacity to help shape new meanings and fresh values. If ecosystem assessment succeeds in highlighting the significance of CES, then the benefits gained, whether people pay for them at the point of use or not, will be included in the 'plus' part of 'GDP plus'. This creates a strong incentive for AH subjects to use their cultural knowledge and critical techniques to help divert people away from costly and environmentally damaging pseudo-satisfiers and toward genuine cultural need satisfiers supplied by ecosystem services.

Through their positions as educators – and writers of books and other forms of publication that can reach beyond academic circles - AH scholars enjoy a certain measure of social influence, and they have the opportunity to express their views through various media. This is not to suggest that AH scholars should engage in didactic practices but to encourage them to raise critical awareness of the manipulation techniques that advertisers, industries, governments and corporations employ and to provide insight and evidence on more sustainable ways of fulfilling human needs through ES.

8. Templates & toolkits: Statement of Significance and Spirit of Place

This next section returns to the question of the applied, indicative and transferable value of existing CES case studies as templates and toolkits. Ann Swidler characterized a 'tool kit' as something consisting of 'symbols, stories, rituals and worldviews which people may use in varying configurations to solve different kinds of problems' (Swidler, 1986: 273). But the notion of cultural toolkit has since come under fire for imposing a false logicity, coherence and uniformity – as well as a static quality – on what is actually a diversity of often highly contested practices.

Despite this caveat, to inform future research on CES, the arts and humanities can usefully draw on a number of current initiatives that emerge from a long tradition of landscape research that offers site-specific assessment of the elements that shape the character of place. Foremost among these are the National Trust's 'Statement of Significance' and 'Spirit of Place' exercises, whose purpose is to communicate a shared understanding of the enduring qualities that make somewhere special (not just anywhere). The notion of Significance, initially influenced by Australia's Burra Charter of 1999 (a standard for best practice in the conservation of heritage places that has been adopted internationally as a template and was formalized as NT's first conservation principle in 2006), dates back to 2002. That year, the Trust issued an instruction that all properties should have a Statement of Significance, drawing together the tangible and intangible qualities that make a particular place special, as the starting point for their conservation and management plans. An almost complete set is now available for NT's historic properties.

Statements of Significance are primarily used by conservation staff and are the basis for measuring properties' conservation performance. These Statements tended to have a bias towards history and cultural heritage even in properties with wider estates; they were usually drawn up by the Historic Buildings Representatives (now Curators). Though a Statement was drawn up for Wicken Fen in 2007, there were relatively few for countryside properties. Operational managers are custodians of the significance of their properties, yet formal statements of significance tend to be less frequently used by other professional disciplines such as those involved with marketing, community involvement and fund raising. This has in the past caused confusion over the single (singular) meaning, and 'spirit' of individual places. A new approach within the Trust, therefore, is for a shared sense of the 'spirit of place' to be developed from across the different disciplines involved in caring for its properties, and from an understanding of different emotional responses to sites by staff, volunteers and visitors.

Sense (and spirit) of place is a concept that eludes precise definition, but refers to how a place is constituted by its 'social facts' in combination with its 'physical facts', and by how the experience of being on the 'inside' of a place promotes a sense of belonging to it and identifying with it through an 'empathetic insideness' that mere physical presence within a place does not guarantee (Kirk, 1963; Relph, 1976; ICOMOS, 2008). 'Spirit of place', in the Trust's terms, is a short statement that captures the intrinsic values of a property and why people feel strongly connected to it emotionally. Within the organization, such a statement aims to guide all activities at a property to improve the quality of everything the Trust does. Training courses are run specifically for property managers on how to assess spirit of place. Initially, the perception was that managers of rural properties had less need of this training as it was less relevant to nature conservation, but this is decreasingly the case. The concept of 'spirit of place' is not restricted in its applicability to National Trust properties, but can equally be applied to any number of places and local areas, for example, as a component in

neighbourhood planning.¹⁸ The creation of a 'Spirit of Place' statement is a separate task from the preparation and review of a Statement of Significance. As concisely as possible to maximize practical applicability, it openly foregrounds affection for place and what it is that people love about a place. And so, whereas the Statement of Significance is primarily an expression of 'expert' views, a Spirit of Place statement incorporates insights from visitors and market research.

Another instructive undertaking for CES research is the Scottish National Heritage toolkit, 'Talking About Our Place' (produced by Countryside; SNH, 2012), which refers to the near and the ordinary ('your local landscape is your local place') as well as the further away and more exceptional (e.g. national parks and national scenic areas). SNH's 'Talking about our Place', which employs the term 'landscape benefits' rather than ecosystem services, is designed to help local communities deal with a threat (as in an unwanted environmental change), engineer an improvement or simply celebrate what is special about the place people live in or near. It also illustrates how place, a concept that AH researchers and general public alike feel more at ease with than ecosystems and environmental settings, is squarely on the policy agenda, with reports bearing titles such as *Power of Place: The Future of the Historic Environment* (English Heritage *et al.* 2000) and *Recharging the power of place: Valuing local significance* (CPRE/National Trust/Heritage Link, 2004).

The most overtly commercial exercise in the articulation of a sense of place is the 34-page *Sense of Place Toolkit* (undated) prepared for the Forest of Bowland Area of Outstanding Natural Beauty (AONB) Service. The express purpose of this toolkit is to help local businesses in this part of Lancashire to 'improve' [their] 'performance' by making full use of the 'special qualities' of the area in marketing their products (put bluntly, to 'generate income by "selling" a sense of place'), most obviously through tourism and purchase of local food products.

The purpose of this report on AH perspectives on CES is not to argue for greater recognition of the built historic environment as a means of accessing/enhancing a sense of place (International Centre for Cultural and Heritage Studies, 2009), though it does note that, for purposes of Landscape Characterization, all environments are historic, and the historic environment includes natural (ecosystem/biodiversity) as well as cultural features. Nonetheless, various AH disciplines (among them architecture, landscape studies, literature, philosophy and ethnohistory) have much to contribute to the evocative (if enigmatic) notions of 'statement of significance' and 'spirit of place', and the related idea of 'sense of place', as well as closely allied notions of place attachment, place dependence, power of place and *genius loci* (Graham, 2009; International Centre for Cultural and Heritage Studies, 2009) – for which the German language has a term that captures much of these meanings in a single word: *Heimat*.

Insofar as AH researchers are trained to capture the experiential qualities of nature, five clusters of concepts become paramount in the context of drawing up statements of significance and sense of place: 1. Significance, value, meaning, worth; 2. Culture, nature, integration of culture-nature; 3. Character, description, thick, thin; 4. Spirit of place, genius loci, sense of place, atmosphere, mood; and 5. Setting, place, landscape, environment, ecosystem, nature, habitat, dwelling, home (Pite,

¹⁸ <http://ntplanning.wordpress.com/2013/11/06/spirit-of-place-how-to-rethink-neighbourhood-planning/>

2013). AH research could productively focus on significance and spirit of place as a major contribution to CES debates, with a potential opportunity for researchers to contribute to assessments of the significance and spirit of place, not just of 'crown jewel' National Trust properties, but of other, less hallowed but eminently worthy and yet-to-be valued places.

The continuing significance of significance as a quality of place and environmental setting is underlined in the National Planning Policy Framework (NPPF) adopted by the Department for Communities and Local Government in March 2012. Setting out the government's planning policies for England, the framework restates the central importance of significance with regard to 'heritage assets', which should be conserved 'in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life of this and future generations', and characterizes conservation as 'the process of maintaining and managing change to a heritage asset in a way that sustains and, where appropriate, enhances its significance'. References to the need to take local character and distinctiveness into account are also frequent (NPPF, 2012: 6, 51, 30-31, 53; https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf).

The next two sections (the final ones) shift from a primary focus on the role and relevance of AH research within the world of ecosystem services to the bigger, more diffuse matter of how the AH community envisages its collective contribution to environmental research and the promotion of a more ecologically sustainable future: the role of AH researchers in communication and public engagement, and the emergence of a new cluster of interests around the notion of the environmental humanities.

9. Creative practices and communication

‘The arts and humanities have important work to do’, reflects SueEllen Campbell, an ecocriticism scholar and creative nonfiction writer (with reference to her role as co-director of an education and outreach programme on climate change), ‘given our greater comfort level [than scientists and social scientists] with tough-to-test-or-quantify matters like complicated human emotions, attitudes, values, languages, cultures, imaginations, and creativities’ (<http://environmentalhumanities.org/about/profiles/ep-campbell>; Campbell, 2013). Glen MacDonald, director of UCLA’s Institute of the Environment and Sustainability, reiterates this point: ‘You can have the best science and engineering, but if it’s not properly communicated to the public, policymakers and stakeholders, that information might end up being completely valueless because nobody gets it. Arts, writing, theater and dance are really important ways to reach people. Typically, the sciences haven’t gotten too far into that’ (Kendall, 2012).¹⁹

Examples from rural communities in sub-Saharan Africa illustrate how performance can play a central role in ‘getting the message across’. Working in environments without access to radio or television, ‘theatre for development’ draws on indigenous visual elements and local idioms to produce a medium for the more effective communication of ideas promoting sustainability and conservation. In 1999, a collaborative venture between Theatre for Africa Community Outreach Programme, Africa Resources Trust and a network of twenty NGOs, funded by the World Bank, was launched to promote conservation and community development in seven southern African countries. The specific goals were to improve communications between rural communities and urban decision makers; to exchange lessons and ideas on natural resource management throughout southern Africa; and to boost local employment through the development of local theatre groups.

A prime instance, since 2006, is the Laikipia Elephant Project in north-central Kenya, which has included not only conventional defences (ditches) against elephants attracted to crops, as well as more innovative deterrents (chilli grease fences and powerful lighting), but also an element of street play. This performative content aims to reinforce awareness of physical measures designed to alleviate human-elephant conflict. The project report explained that ‘drama can be an effective way of generating public understanding of conservation problems. It can overcome the barrier of literacy, and create opportunities for discussion of complex, contested and controversial issues in a relatively safe and open environment’. The project recruited a local drama group based in the town of Nanyuki to devise and perform an interactive play with communities of local smallholders. First performed in 2007, the play focused on building awareness of tools for crop defence. In 2008, the play was rewritten to involve communities in the management the West Laikipia Fence, a new electric barrier. Informal assessments of the drama’s impact suggest it has played a significant role in stimulating debate and understanding of defence and deterrent measures, and has contributed to attitudinal and behavioural change (Graham, 2009).²⁰

At the same time, MacDonald’s remarks hint at an assumption – potentially problematic – within the belief that those who work in the arts and humanities are particularly good at ‘reaching people’ and

¹⁹ What this report does not include, as one reviewer has noted, is an explicit discussion of how AH perspectives, approaches and methodologies, departing from singular, monolithic notions of ‘the public’ and ‘the community’, can make significant contributions to engagement and communication with a wide variety of publics and communities.

that the sector can probably make its most valuable contribution in the realm of communication. The acceptance of this mindset could consign AH scholars to the permanent status of the junior partner who operates within a secondary sphere, transmitting findings generated by the senior partner in the primary sphere of science and engineering. (Whether arts and humanities scholars, in practice, are indeed superior communicators is another matter. As David Lowenthal notes, the attribute of lucidity cannot always be taken as given, for, in the 1980s, ‘the humanities followed the social sciences into jargon-laden limbo, their journals given over to esoteric mystique that passed for profundity. They now resembled the physical sciences only in being remote from lay comprehension....a geographer dismayed by cultural-studies chic finds “our written product more inaccessible than in the heyday of positivist jargon”’ [Lowenthal, 2011].)

Art exhibitions on environmental themes that do little more than illustrate scientific findings, for example, are of limited social relevance and intellectual value. So are plays aiming to raise consciousness of climate change that offer little besides agit-prop and didacticism (‘unalloyed advocacy’ [Mackey, 2013]). Also of restricted value (and appeal) are more or less passive ‘collaborations’ in which arts and humanities researchers offer an (increasingly obligatory) ‘arts perspective’ or ‘humanities perspective’.

Dynamic creative practices can transform our sense of the world and our place within it. Three recent/ongoing artwork projects that possess the power of creative dialogue, depiction and performance to transport and potentially transform – and that are all place-based yet of universal resonance - are ‘Eden3’, ‘That Oceanic Feeling’, and Con>flue>ence.²¹ Reiko Goto’s and Tim Collins’ ‘Eden3’ (2008-13) is an artist-led collaboration with technologists and scientists to explore cross-species empathy with trees in the larger context of climate change. Based on photosynthesis data, listeners ‘hear’ leaves’ physiological reactions to invisible changes in CO₂ levels in the atmosphere of Aberdeen, encouraging a sense of shared environmental setting and conditions. (Two other provocative creative interventions involving trees are the Trees and Design Action Group’s photomontage of London locales that erase the familiar arboreal content of sites such as Hyde Park Corner, Parliament Square and the Embankment and geoscientist Iain Woodhouse’s comparable remixing of three famous paintings, posted on his blog ‘Forest Planet’ in January 2013. Woodhouse explained that he ‘chopped’ (photo-shopped) out (most of) the trees from paintings by Constable (‘The Haywain’), Seurat (‘Sunday afternoon on the Island of Grande Jatte’) and Van Gogh (‘Olive trees with yellow sky and sun’) to raise awareness of the urgency of arresting the global advance of deforestation. He invites us to imagine a world without trees – a world distinguished by the absence of an ecosystem service rather than its presence (Trees and Design Action Group/Capita Symonds Land Planning [n.d.]; Woodhouse, 2013).0

Goto’s and Collins’ conviction that arts and humanities are not subordinate but ‘play a complementary role to mitigating scientific response to environmental change by attending to conception, perception, experience and values’ – that the poetic and the technical/scientific can enjoy genuine parity - also informs previous collaborations with biologists, engineers and geologists on the reclamation and restoration of brownfield sites and degraded rivers (Eden3, 2008-13; Collins, 2010).

‘That Oceanic Feeling’, an exhibition at the University of Southampton’s John Hansard Gallery, represented the outcome of artist Rona Lee’s recent residency (2012) with the Southampton-based National Oceanography Centre. Lee’s work probed the human relationship with the planet’s most

²¹ Though the examples cited in this report are necessarily selective, they aim to provide a sense of the extent and range of work currently/recently pursued that highlights cultural values of places, landscapes, environmental settings and ecosystems.

remote, inaccessible and, from the standpoint of human existence, most inhospitable, environment. The product of a ten-day ship-board collaboration in the Bay of Biscay with geoscientists who map these places with remotely operated underwater vehicles that use devices such as sonar probes to measure temperature and salinity, the various exhibition pieces explore what it means to 'look' into a light-less place that is more mysterious and unknown than the moon (Lee, 2012).

Funded from various sources, including Defra and Arts Council England, the third project under examination, Con>flue>ence, blends art with science and technology to get beneath the surface of the North Devon Biosphere Reserve by collecting several months' worth of live online data from sites on the banks of the Torridge with remote sensors (ecoids). Working with data such as the sound of rising water in the river's tidal stretch, measurements of water temperature and fish counts, four artists created works that explored the potential of 'poetic datascape' and 'intimate science', which they shared with schools and communities along the river to encourage a more visceral relationship with their environmental surroundings and its fundamental biophysical processes (Con>flue>ence, 2012; Fish, 2012: 2).

These examples illustrate that, just as the notion of 'knowledge transfer' (implying primary and secondary spheres) is becoming outdated, replaced by the non-hierarchical notions of 'knowledge exchange' and 'knowledge co-production', members of the artistic community are re-considering the role of creative practice in art/science collaborations, aspiring to shape research questions and how they are addressed.

An example of applied performance designed to improve understanding of dependence on and relations with landscape at sites that represent particular pressure points is 'Multi-Story Water'. Focused on three waterways in the Shipley area of Yorkshire, the River Aire, Bradford Beck, and the Leeds-Liverpool Canal, this project was built around site-specific performances initially held in September 2012. This was one of the main outcomes of a wider AHRC project pursued in conjunction with the Environment Agency and other stakeholder groups such as Bradford Council, the Canal and Rivers Trust, Yorkshire Wildlife Trust, Yorkshire Water, and the Aire Rivers Trust, that grappled with the challenge of employing place-based arts practices to engage local people in a creative, adventurous conversation around questions of watercourse awareness and environmental change, past, present and future, in their locality (such as flooding, water quality, aquatic wildlife and climate change). A parallel project in the Eastville area of Bristol examined local residents' relationship with and perceptions of their local river, the (partly buried) Frome (Bottoms, 2012; Heddon and Mackey, 2012).

Another 'imaginative engagement' technique that has been used for re-imagining purposes is creative writing. Six two-hour writing workshops involving eleven participants were held in south Yorkshire's former coal-mining and steel-making heartland to help re-connect members of disconnected local communities to the Dearne, a 'recovering', post-industrial river. This was an exercise in social learning, to encourage local residents to 'imagine what a future river system would look like' and to see the Dearne 'might once again be valued, cared for, and used rather than forgotten or disparaged'. The immediate output was the publication of an anthology of writings, but the larger ambition was to ascertain whether this particular method of imaginative engagement could 'raise catchment consciousness' (Selman, Carter, Lawrence and Morgan, 2010).

10. Toward the creation of a UK Environmental Humanities community

This more ambitious sense of what the arts and humanities community should aspire to and what its researchers can achieve underscores Hulme's observation that the AH researcher's role is 'not simply to translate scientific knowledge into public meaning, as though science is the only source of primary knowledge' (Hulme, 2012: 178). Galvanized by such sentiments, researchers within AH who work on place, nature, landscape, environment and ecosystems increasingly refer to themselves as operating within a nascent, outward looking AH area known as the 'environmental humanities'. (It should be noted, however, that some AH scholars prefer the term 'Ecological Humanities' because substantial progress has already been made in various fields with the prefix of 'eco' - notably ecofeminism, ecolinguistics, ecopoetics, social ecology, political ecology and human ecology. Stibbe (2013) characterizes the Ecological Humanities as 'the study of the life-sustaining relationships of humans with other humans, other species and the physical environment'. It should also be noted that neither 'Ecological Humanities' nor 'Environmental Humanities' explicitly includes the Arts, though they usually does so by default.)

So far, the concept and cause of the environmental humanities is most advanced in North America and Australasia. A new journal, *Environmental Humanities* (2012) is based in Australia, and most of its contributors to date (it is published annually) are drawn from these two parts of the world (<http://environmentalhumanities.org/>). The national affiliations of the series editors and editorial board of Routledge's new Environmental Humanities series also reflects the concentration of activity to date in these parts of the world. Programmes in Environmental Studies and in Science, Technology and Society at US universities feature units/majors such as 'Humanities, Science, and Environment' (Department of Science and Technology in Society, College of Liberal Arts and Human Sciences, Virginia Tech) (<http://www.admiss.vt.edu/majors/index.php/majors/major/HSE>), there are environmental humanities centres at UCLA and Stanford (<http://www.environment.ucla.edu/index.asp>; <http://ehp.stanford.edu/>), and the University of Utah supports an Environmental Humanities Graduate Program (<http://environmental-humanities.utah.edu/>). Humanities for the Environment, an initiative (2008) of the Consortium of Humanities Centers and Institutes, is also US-based (<http://initiatives.chcinetwork.org/environment/about/>).

The two-fold objective of Stanford's Environmental Humanities Project (set up in 2007) is:

to show the importance of environmentally oriented perspectives for transforming basic assumptions in humanistic research, and to foreground how humanistic approaches reshape inquiry about environmental issues in disciplines outside the humanities themselves. Cultural, philosophical and aesthetic dimensions form a crucial part of the search for solutions to urgent environmental problems. We seek to explore confluences as well as conflicts between these dimensions and legal, policy-oriented and scientific research so as to develop a fuller and more complex picture of humans' engagements with their natural environments (<http://ehp.stanford.edu/about.htm>)

This provides a working model that can readily travel across the Atlantic. In Europe, the environmental humanities are a less familiar notion, with the exception of institutes in Munich (Rachel Carson Center for Environment and Society, <http://www.carsoncenter.uni-muenchen.de/index.htm>) and Stockholm (Royal Institute of Technology (KTH), Environmental Humanities Laboratory). The 'overarching goal' of the Laboratory (housed in the KTH's Division of History of Science, Technology and Environment) is 'to create a post-disciplinary environment in which teaching, research and PhD education are integrated to modernize and develop the

humanities for sustainable development' (<http://www.kth.se/en/abe/om-skolan/organisation/inst/philhist/2.3231/ehl/kth-environmental-humanities-laboratory-1.326400>).

In the UK, the environmental humanities are just beginning to appear on the scholarly landscape. A Centre for Environmental Arts and Humanities was recently established (2013) within the Environment and Sustainability Institute of Exeter University's Cornwall campus (<http://www.exeter.ac.uk/esi/>) (note the explicit inclusion of the Arts in this instance); the University of East Anglia recently launched an MA/MSc in Environmental Sciences and the Humanities (<http://www.uea.ac.uk/study/postgraduate/taught-degree/detail/ma-environmental-sciences-and-humanities#course-overview>); and Oxford University's Smith School of Enterprise and the Environment held a humanities symposium in October 2013. Meanwhile, at Edinburgh University, work that constitutes the environmental humanities has been pursued without the formal label in Geography, Philosophy and Divinity, and under the auspices of the Institute of Advanced Studies in the Humanities (IASH), through initiatives such as 'Embodied Values' (2007-08), which interrogated the traditional separation of humans from other animate creatures and their environmental dwelling places, and 'Senses and Environment'. These activities have now been formalized into the Edinburgh Environmental Humanities Network (<http://www.blogs.hss.ed.ac.uk/eeh/about-us/>). Also worthy of mention is the Language and Ecology Research Forum, a UK-based initiative with c. 250 members worldwide (<http://www.ecoling.net/>).

The working group convened to produce this report constitutes a de facto representation of Environmental Humanities components in the UK. Building on the foundations of AHRC's Landscape and Environment programme (2005-10; and its follow-on Impact Directorship, 2010-12), as well as additional AHRC-funded initiatives pursued over recent years as part of the cross-council programmes on 'Researching Environmental Change', 'Living with Environmental Change', and (less obviously) 'Connected Communities'²² – some of which have been discussed here – this group and this report provide a springboard for advancing the cause of the environmental humanities in the UK.

The scale of the undertaking should not be underestimated. For the task ahead does not just entail bringing to wider attention precisely what the AH community has already achieved in this sphere – and what its future contribution could look like. The job also involves awareness raising and transformation within the AH community. Moreover, though there is a broad consensus regarding the desirability of a range of perspectives that includes AH approaches for the maximum potential of ES research to be realized, whether it is possible to identify or mobilize a combined, synthesized AH perspective remains to be seen. Some would argue that the next step is to spell out in even fuller detail the individual disciplinary perspectives on CES – creative/performative, literary, linguistic, geographical, historical, anthropological, archaeological, ethical, philosophical and aesthetic – that are collectively designated the arts and humanities.

Arts and humanities practices, assumptions and language – like those of other disciplines – must be open to change and development in the light of environmental challenges of urgent social relevance hitherto largely neglected within AH. Questioning the privileged status of the human and the

²² Two major recent, three-year awards under the 'Connected Communities' programme that engage with questions of environment, nature and landscape from arts and humanities perspectives are 'Towards Hydrocitizenship: Connecting Communities with and through Responses to Interdependent, multiple water issues' (Owain Jones, Bath Spa University) and 'Stories of Change: Exploring Energy and Community in the Past, Present and Future' (Joe Smith, Open University).

singularity of human agency within a wider community of planetary life need not diminish an appreciation of human uniqueness and accomplishments. Nor does scrutiny of the humanistic assumptions at the core of the arts and humanities – or what David Ehrenfeld refers to as the ‘arrogance of humanism’ (to cite the title of his 1978 book - involve handing a free gift to those already sceptical of the value of the AH contribution. On the contrary, an examination of our commonalities with other species could substantially enrich our sense of who we are as humans.²³ Another area ripe for investigation is the ways in which language inherits and often reinforces conventional oppositions between town and country, urban and rural - which demographic shifts toward the suburbs and the sprouting of edgelands have rendered somewhat anachronistic, if not obsolete, and which ecocriticism has sometimes unthinkingly perpetuated.

²³ Exploring this shared terrain was one of the objectives of ‘Ark-ive’, a ship-based exhibit in National Theatre Square, London (August 2012), which provided ‘a space to explore man’s complex relations with the animal world’. ‘Ark-ive’ was an initiative of the Cornwall-based company, WildWorks (2005): <http://wildworks.biz/projects/ark-ive/>. I thank Mike Wilson for drawing my attention to WildWorks.

11. Conclusion

The purpose of this report is to highlight the originality and essentiality of AH approaches to the study of CES. The deliberations and findings of this AHWG - and the additional research undertaken as part of the report-writing process - demonstrate the distinctive value of AH contributions to ES discourse and case work. One of the main strengths of AH approaches to which attention is drawn is the ability to recognize, explore and highlight the value of subjectivity and to illustrate that difference and diversity of opinion, interpretation and understanding matter enormously in considerations of value. Ecosystem services assessment should be self-reflective about its own assumptions and AH approaches are strategically positioned to conduct a rigorous examination of the very notion of 'value' itself, with reference to the basic and higher human needs - for belonging, identity, respect, recognition of worth, health and happiness – that generate wellbeing (physical, psychological/mental and spiritual).

Researchers in the AH community, some of whom work within the field increasingly known as the Environmental Humanities, have moved decisively beyond the roles of facilitation, enablement and 'add-on'. They are actively pursuing productive and enriching human engagement with (other-than-human) nature and environment, which generates a clearer, deeper, thicker and more nuanced articulation of human experiences of nature, landscape, ecosystem and environment, and the meanings and values that emerge and are extracted from them. The AH contribution, for instance, is not restricted to the evaluation, recording and expression of values that already reside in environmental settings already highly prized according to cultural norms, AH approaches have the capacity to help shape new meanings and fresh values, not least for 'yet-to-be valued' places beyond the topographical 'big hitters'.

Though much remains to be done, AH researchers are no longer peripheral to CES discourse and case work. They are now involved in shaping and setting agendas within multi-disciplinary work on human engagement with nature and environment. Rather than adapt to the existing assumptions and agenda of ES, they are in a position to help adapt ES, not least by questioning the four established categories that have framed ES work since the outset. That these four categories are by no means mutually exclusive is increasingly acknowledged. Yet it is more than a question of overlap. Given that culture informs provisioning, supporting and regulating services to a greater or lesser extent, there are arguably only three pillars on which the edifice of ES is constructed.

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Appendix 1: AHWG Membership

Coates, Peter (Bristol University, History) [co-chair and lead author]

Church, Andrew (Brighton University, Geography) [co-chair]

Brady, Emily (Edinburgh University, Aesthetics & Ethics)

Cowell, Ben (National Trust)

Daniels, Stephen (Nottingham University, Geography)

Fish, Rob (Exeter University, Politics)

Holyoak, Vince (English Heritage)

Horrell, David (Exeter University, Religious Studies)

Lambourne, Gail (AHRC)

Mackey, Sally (Central St Martin's, London University, Performance)

Pite, Ralph (Bristol University, English)

Stibbe, Arran (Gloucestershire University, Linguistics)

Waters, Ruth (Natural England)

Appendix 2: Related Workshops Attended by Coates

'Aesthetic and spiritual responses to the environment', BESS (Biodiversity and Ecosystem Service Sustainability programme, University of York) workshop, York, 22/23 January 2013.

'Cultural Ecosystem Services: Inside the Black Box of Natural Resource Management', workshop, University of Exeter, 1-2 July 2013.

'Studying the Environment: Working across Disciplines', Rachel Carson Center Workshop, Bad Kochel, Germany, 20 July 2013.

'Centre for Environmental Arts and Humanities Launch and Symposium', University of Exeter, Penryn Campus, 11 September 2013.

'Performance and the Environment: New Perspectives on Ecological Performance Making', Royal Central School of Speech and Drama, London, 1 November 2013.

'Trees to Cherish: Connecting History, Policy and Future', King's College London, 10 January 2014.

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