Econets, landscape & people: Integrating people's values and cultural ecosystem services into the design of ecological networks and other landscape change proposals

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Foreword

Natural England commission a range of reports from external contractors to provide evidence and advice to assist us in delivering our duties. The views in this report are those of the authors and do not necessarily represent those of Natural England.

Background

The Natural Environment White Paper – '*The Natural Choice: securing the value of nature*' provides the policy context for protecting and improving England's natural resources, wildlife and landscapes; and reconnecting people and nature. Specific recommendations include:

- Establishing greater ecological connectivity, through large-scale ecological networks.
- Connecting people with their landscapes.
- Greater public engagement in landscape planning.

The planning, design and establishment of ecological networks is primarily underpinned by natural science research and associated evidence and data. This is critical to understanding the appropriate scenarios and patterns for ecological connectivity, conserving habitats and planning for the movement of species.

However, the landscape and human/cultural dimension of ecological networks is often less considered as an underpinning part of the context and evidence and, as a consequence, not always fully integrated into their planning, design and implementation.

In late 2012, Natural England commissioned the study known as 'EcoLaP'– Econets, Landscape and People to:

- Help understand how to capture the public's perceptions of landscape change, aesthetic and cultural value.
- Demonstrate the practical ways and benefits of using this, often more qualitative, information to complement natural science data and mapping information when planning and designing ecological networks.

This report is part of the wider EcoLaP research and evidence and will be used to inform Natural England and others when planning and establishing ecological networks across England's landscapes.

Contents

1.   Introduction

1.1   Introduction

Making Space for Nature[1] reviewed England's existing wildlife and ecological networks. It set out the rationale and opportunities for a shift from managing local wildlife sites towards large-scale habitat restoration and recreation – achieving greater ecological connectivity through the re-establishment of ecological processes and ecosystem services, for the benefits of both people and wildlife. It called for more, bigger, better and joined ecological networks.

The Natural Environment White Paper – 'The Natural Choice: securing the value of nature'[2] provides the underpinning policy context for protecting and improving England's natural resources, wildlife and landscapes; and reconnecting people and nature. As well as recommendations for establishing greater ecological connectivity, through large-scale ecological networks, recommendations are made for connecting people with their landscapes and for greater public engagement in landscape planning.

The European Landscape Convention[3] (ELC) is concerned with the natural and human actions and interactions that shape and define landscape, its character and how it is perceived. It emphasises the important relationship between landscape character, cultural/heritage value and place – and makes provisions for greater engagement of people in decisions for landscape protection, landscape management and landscape planning. The underlying aims of the Convention also reflect growing concerns over increased landscape fragmentation, homogeneity in landscape character and function and the potential for disconnection between people and place. There are many potential synergies between the objectives of the ELC, the establishment of ecological networks and 're-connected' landscapes.

The planning, design and establishment of ecological networks is primarily underpinned by natural science research and associated evidence and data. This is critical to understanding the appropriate scenarios and patterns for ecological connectivity, conserving habitats and planning for the movement of species – set within the wider context of climate change. Whilst there are clearly human benefits through greater ecological connectivity and re-establishment of ecological processes (for example from ecosystem services) the landscape and human/cultural dimension of ecological networks is often less considered as an underpinning part of the context and evidence and, as a consequence, not always fully integrated into their planning, design and implementation.

1.2   The Study and Natural England's Requirements

In late 2012, Natural England commissioned a study that aimed to find effective ways of capturing the public's perceptions of landscape change, aesthetic and cultural values; and demonstrating the practical ways and benefits of using this, often more qualitative, information to complement natural science data and mapping information when planning and designing ecological networks. The study is known as 'EcoLaP'– **Eco**nets, **L**andscape **a**nd **P**eople.

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[1] Lawton et al, 2010
[2] Defra, 2011
[3] Council of Europe, 2000

Natural England is developing and gathering a range of research and evidence to help support the implementation and establishment of ecological networks across England's landscapes. To this end, a number of research and evidence projects are being taken forward.

It is considered that increased awareness and integration of landscape and socio-cultural values can support a more sustainable econet. Using cultural services as a framework, the study looked to ways in which cultural values and other human aspects of landscape could be incorporated into the design and implementation of new ecologically connected landscapes.

The findings of the EcoLaP study will help to move further from theory into practical application and aims to bring greater trans-disciplinary working on landscape-scale conservation projects – Natural England wishes to encourage greater collaboration between ecologists, landscape planners and social scientists; bringing holistic and analytic approaches (that combine ecology and planning, nature and culture) to the planning of ecological networks.

To date, it is generally believed that landscape science and ecology professionals have not sufficiently incorporated public perceptions into their designs. Thus, although many such professionals are now adopting an ecosystems approach, the 'public' dimension of ecosystem services – that is, cultural services and the way the public perceives these services – have not generally been adequately represented. The study aims to help fill this gap in current practice.

The outputs of this study will be used to inform both the context and planning of landscape-scale projects (such as Nature Improvement Areas) to help link cultural values and public perceptions of landscape change for greater ecological connectivity and the conservation of biodiversity and strengthened landscape character. The findings will also be used by Natural England and the academic community to further the consideration of the landscape and human aspects of ecological networks. It is also valuable as evidence to help inform the practical application of the ecosystem approach for large-scale conservation projects, particularly in terms of the landscape context and place-based analysis of ecosystem services.

The research outputs are mainly aimed, in policy and practical terms, at 'large-scale landscapes', typically the sub-national or regional level, although the national context will be briefly considered too. Therefore the target beneficiaries of this research are organisations which have a role in designing and implementing ecological networks at a regional and more local levels, such as the Landscape Partnerships, Wildlife Trusts, and Local or National Park authorities.

Whilst this study has be undertaken with a focus on ecological networks, it has become increasingly apparent that its broader findings, lessons learned and methodological approaches, using a cultural services framework, are relevant to various other landscape planning and landscape change contexts.

1.3   Study Objectives

The detailed objectives for the study were to:

- provide a review of recent international applied research, methodologies or approaches that has explored understanding and incorporating cultural values and public perceptions in the planning and design of ecological networks;
- outline the challenges and the opportunities for integrating the socio-cultural dimension of landscape in the planning and design of ecological networks;
- explore approaches to gathering and synthesising information on public perceptions of landscape change and cultural values in the context of a proposed landscape-scale ecological network;
- show how this information and evidence can be considered and represented in a way that can be effectively integrated alongside natural science evidence, data and/or mapping; and
- demonstrate and provide advice on how the approach could be practically applied elsewhere.

This study is concerned with public perceptions of landscape change. The term 'perception' is understood, not in the narrow sense of 'landscape perception', but in all the ways in which people grasp the values and qualities of their environment. It includes visual perceptions, people's valuation of environmental benefits, the apprehension of patterns and processes in people's surroundings, seen and unseen links with history, and perceived opportunities to participate in and learn from landscapes.

The context for the study is England, although the first part of the research – the review of existing literature – was expanded to cover both European and global perspectives.

1.4   Résumé of Study Approach

The study was carried out over six stages. The various strands of work undertaken were as follows:

- Stage 1: Previous Research & Context
    - a review and summary of existing research, evidence and applied research
- Stage 2: Identifying Challenges & Opportunities
    - an exploration of the challenges and the opportunities for integrating the socio-cultural dimension of landscape in the planning and design of ecological networks
- Stage 3: Developing a Way Forward
    - an exploration of the potential approaches for gathering and synthesising information on public perceptions, as well as expressing and representing this information in an effective and integrated way for the planning and design of ecological networks
- Stage 4: Pilot Demonstration
    - a demonstration of how these approaches might be practically applied in the context of an example landscape-scale ecological networks project, possibly using primary qualitative research
- Stage 5: Prepare Advice
    - a review of the pilot, leading to advice as to how this approach might be practically applied and benefit the development, planning and design of a landscape-scale conservation/ecological networks project in the future

- Stage 6: Communicating the Findings
  - by means of this final report, presentation of the findings and further dissemination by means of seminars/webinars and through the publication of academic paper(s).

1.5   Report Structure

This study report comprises the following chapters:

- Chapter 2 signposts the key findings from the study
- Chapter 3 provides an explanation of the key terms used throughout this report
- Chapter 4 examines the various contexts for this study, including the planning context, governmental practices regarding landscape and the engagement of people in econet design
- Chapter 5 sets out the approach and findings from the literature review
- Chapter 6 explains the issues behind the choice of the methodologies that were considered for use in the pilot research phase of the study
- Chapter 7 sets out the chosen methodologies
- Chapter 8 contains the findings from the pilot research, carried out in the Greensand Ridge
- Chapter 9 examines the outcomes of the pilot research, in terms of methodologies and wider implications for future research into econets
- Chapter 10 brings together the guidance from future public perceptions research into econet design and implementation
- Chapter 11 presents some concluding thoughts
- Chapter 12 sets out a table of references.

2.   Signposts to Key Findings

Background

Over the last century, extensive fragmentation has taken place in England's landscapes, resulting in adjustments in wildlife habitats, the movement of species and a decline in biodiversity. The problem has been intensified through climate change, which has affected the ability for wildlife species to adjust.

A potential solution has been proposed through the creation of 'ecological networks' – corridors and stepping stones that connect core areas of biodiversity, surrounded by buffer zones. These 'econets' have, until recently, been based on scientific principles – yet there are also human and cultural implications, whether beneficial (such as enhanced landscapes, better opportunities to view wildlife) or problematic (including restricted views, removal of woodland, or increased wetness).

The engagement of the public is important to the successful establishment, ongoing management and future continuity of an econet. Yet the literature review, conducted as a first stage of this study, found that no established econets have yet taken the public's perceptions into proper account.

This background concerning econets and the engagement of the public can be found in sections 4.1, 4.5, 5.3 and 5.4 of the study report.

Cultural Services

The establishment of an econet has an impact upon cultural services – the 'services' that are delivered to mankind by a landscape or ecosystem, including inspiration, tranquillity and education. There is an increasing focus on the cultural aspects of landscape and ecosystems, as evidenced at a European level by the European Landscape Convention and in the National Ecosystems Assessment at a UK national level.

However, although there are some recent notable examples, few research studies have been carried out into public perceptions of cultural services in either landscape or ecosystems contexts in England – and only one example could be found in Europe of a study explicitly examining econet cultural services.

The discussion of econets and cultural services can be found in section 4.6. Examples of pertinent studies can be found in sections 4.5 and 6.6.

Planning Context

There has been some limited development of econets in England, but these econets have been established in land use settings that lie largely outside the statutory planning regime. Public consultation has taken place, but has been typically focussed on 'stakeholders', including land-owners and managers. Such issues concerning the planning context are discussed in section 4.2.

In discussion with a selection of landscape and ecology professionals (see section 6.2), it became clear that econet-type developments are at an early stage in England. There are uncertainties about the science, as well as who has responsibility for econet development. Whilst there is some acceptance by econet planners and designers of the need to take public views into consideration, there is some scepticism that the public would be able to understand and respond to the issues concerned. There is also considerable uncertainty amongst the professionals about cultural services and the application of a cultural service approach to landscape or econet planning.

Thus, whilst there is a degree of interest in using public perception information, the lack of examples (of best practice, for example) suggests that that it is as important to set out the rationale as it is to define any methodological approach.

Potential Research Methods

Various research techniques (for examining public perceptions and cultural services in the contexts of econets and other landscape-change scenarios) were examined during the study. A full review, together with an analysis of research objectives, can be found in Chapter 5 of this report.

In the light of an extensive pilot phase of research it was concluded that various techniques would be suitable, but that there were a number of requirements for any research – including the type of information and how it is delivered, the research audiences and how they should be recruited, the tasks that respondents are required to undertake. An explanation of the pilot is given in Chapter 6 and a review of the tested methodologies presented in Chapter 7.

The Pilot

An extensive research pilot was carried out in and around Rushmere Country Park, an area within the Greensand Ridge NIA. The Country Park contains a proposed econet.

The pilot research showed that the public were able to identify exactly where they experienced cultural services within a landscape – as well as within the boundaries of a future econet. Detailed cultural services maps were produced using information gathered from the public during the research, separately identifying inspiration, heritage, recreation, tranquillity and where wildlife can be appreciated. Negative cultural services were also mapped. These maps are reproduced in sections 8.2 to 8.4.

The public were also able to appraise to some degree the impact (on them personally and on others) of the proposed habitat changes associated with the econet – and whether and why they supported the scheme. These findings are presented in section 8.5.

It was also found possible for the public to state their satisfaction with their local landscapes on a range of factors – this is a potential method for measuring the long-term impact of an econet on local users (see section 8.6).

A review of the pilot research can be found in section 9.2. Proposals for a refined methodology, including potential technological solutions, are set out in section 9.5.

Implications for Future Econet Appraisal

The pilot research revealed a number of issues concerning the measurement and mapping of cultural services, which not only relate to econets but also contribute to the wider debate about cultural services. They include the **nature** of cultural perceptions, the **accuracy** of cultural service identification, the **drivers** of cultural value, the **intensity** of experience, **absent** and **negative** services, and the scope for **quantifying** cultural services. Section 9.3 sets out the discussion of these issues. Also contained in this section is a discussion concerning the difficulties experienced in the pilot with researching perceptions of other ecosystem services.

Further discussion, on the ability of the public to appraise the detail of an econet scheme and on their understanding and appreciation of wildlife, may be found in section 9.4.

Advice for the Future

Chapter 10 provides some preliminary advice for developing a coherent approach to the design and planning of econets with cultural services in mind. It includes a discussion on people's attitudes and the need to enhance their understanding through educational activities and community events – not only for current engagement, but also to ensure continuity of an econet into the future.

Econets are still not a priority public issue, so public engagement needs to take advantage of new ways of thinking, including technological developments – not only to gather information, but also to disseminate information and raise awareness.

The chapter also includes a discussion of the impediments identified during the interviews with landscape and ecology professionals, as well as how these might be overcome.

The chapter also sets out proposals for additional research, identified during the course of the study, and concludes with some wider recommendations and suggested best practices for Natural England.

3.   Key Terms

This section of the report briefly sets out an explanation of the key terms that are used throughout this study.

3.1   Econet (ecological network)

The term "econet" is used throughout the report as the short word for an "ecological network". This is meant as a network of ecological elements such as corridors and stepping stones that connect core areas surrounded by buffer zones, and other natural areas, forming a system able to support ecological connectivity. Ecological networks have often been indicated as a potential solution to environmental fragmentation and climate change, as they allow species to move and adapt to environmental change. It is generally accepted that connectivity need not imply physical connectedness, and so econets will often be characterised by measures that generally decrease the hostility and enhance the permeability of 'matrix' habitat, as well as providing 'core' habitat, for a range of target species.
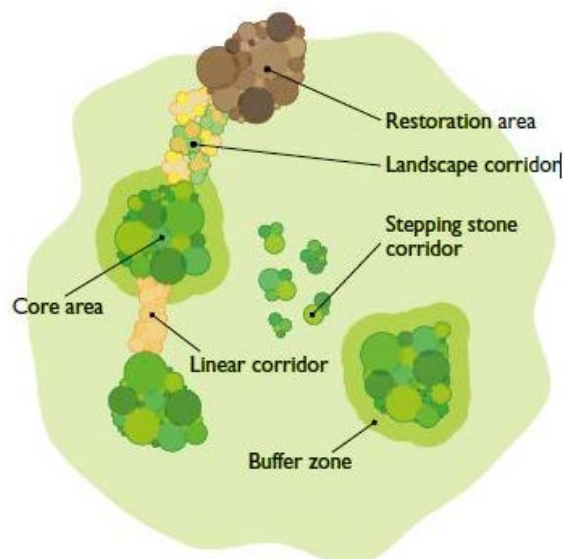
An econet is generally conceived at a large-scale, typically encompassing a range of sites, habitats and landscape units. When landscape elements are disconnected from each other, econet structures can help in supporting more viable natural systems, linking the landscapes with ecological corridors, stepping-stones and a more permeable matrix. In the same way, econets can link core areas and their buffer zones.

Connectivity, therefore, is the keyword for econet research. It is used not only to refer to the potential of ecological networks to assist species' life cycles, but also to refer to the scope for unlocking the socio-cultural potential of landscapes for people.
The acronym EcoLaP (**Eco**nets, **L**andscape **a**nd **P**eople) indicates an equal focus on both landscape and people. The econet, accordingly enriched by the cultural dimension, becomes a social network in addition to an ecological network.

3.2   Ecosystem Services

Ecosystem services are those components or aspects of ecosystems that people utilise, actively or passively, for their well-being. These include provisioning services such as food and water; regulating services such as flood and disease control; cultural services such as spiritual, recreational, and cultural benefits; and supporting services, such as nutrient cycling, that maintain the conditions for life on Earth[4].

3.3   Landscape Services

This EcoLaP research study has chosen to start from an ecosystem approach, since the approach is well understood among policy makers and is becoming increasingly used as the basis for the design and appraisal of projects that involve change at a landscape-scale.

However, an understanding of the expression of ecosystem services within wider landscapes is also fundamental to the study. Without a landscape dimension, a focus on ecosystem services can result in fragmented, 'set piece', projects which do not result in coherent and valued future places. Recent research has proposed 'landscape services' as an alternative to ecosystem services[5], and, whilst this may not supplant the well-established policy use of ecosystem services, it emphasises the importance of recognising the particularities of how such services become manifest in spatial patterns and processes. Similarly, the closely related concept of social-ecological resilience has a strong spatial expression[6], affirming the similarities between social–ecological systems and real-world landscapes, whereby most system processes have a spatial component.

Starting from the current pattern–process paradigm in landscape ecology, the authors draw upon a knowledge framework called 'the structure–function–value chain'. Thus, by proposing a link of pattern-process-value, it is argued that landscape functions are not only part of the pattern–process paradigm in landscape ecology, but can also be considered from the point of view of values that humans attribute to landscapes. It is when values are incorporated into the pattern–process paradigm that landscape ecology can form a basis for sustainable landscape development.

3.4   Cultural Services

Cultural services are the non-market benefits people obtain from landscapes through spiritual enrichment, cognitive development, reflection, recreation and aesthetic experiences[7].

The work of Termorshuizen and Opdam (2009) has been influential in incorporating socio-ecological services into landscape systems, by encompassing planning and local communities. However, their consideration of cultural and spiritual values was still limited. Pungetti et al

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[4] The European Commission aims to develop ecosystem services and Econets through Green Infrastructure, "addressing the spatial structure of natural and semi-natural areas but also other environmental features which enable citizens to benefit from its multiple services. The underlying principle of Green Infrastructure is that the same area of land can frequently offer multiple benefits if its ecosystems are in a healthy state." (see: http://ec.europa.eu/environment/nature/ecosystems/)

[5] Termorshuizen and Opdam, 2009; de Groot et al, 2009

[6] Cumming, 2011

[7] Daniel et al, 2012

(2012) considered the contribution of sacred species and sites to conservation biology, subsequently extending to the biocultural diversity linked to cultural, sacred and ecological landscapes[8]. In this new framework, cultural services are fundamental as they are part of the basic needs that humans require for their well-being and survival, in addition to food, water and shelter. This has been also defined in the Millennium Ecosystem Assessment.

Cultural services have been picked up elsewhere in the policy arena. The European Commission states in its Communication on Green Infrastructure (GI) that ecological values, environmental quality and cultural assets are crucial to well-being and economic prospects, to the extent that overexploitation of these natural resources is recognised as a threat to territorial development. Working with nature and in harmony with the local landscape to deliver essential goods and services through GI projects, using a 'place-based' approach, is cost-effective and preserves the physical features and identity of the locality[9].

Using Proxies to Measure Cultural Values

It is evident that a number of academics are currently moving towards the use of proxies for cultural services, particularly in an ecosystem services context and, as a result, their use is being adopted in some areas of government policy. The advantage is that existing datasets can be used, where they exist, to understand the spatial distribution of cultural values without the need for primary research.

Such secondary measures that might usefully supplement the direct 'people' information could include, for example:

- number of tourist visits
- use made of landscape in brochures, publicity etc
- measures of accessibility (distance to the landscape)
- opportunities for 'health walks' (footpaths, car parks)
- number of educational visits

There are, however, a number of counter-arguments to using these secondary data measures, particularly in an econet context.

For example, such measures do not recognise landscape quality – at best they measure the 'stock and change' of the landscape or the uses made of it. This is important if the econet design changes the quality of the landscape as, then, a key outcome will remain unmeasured.

Another issue concerns the nature of cultural values, especially their complexity – which is not adequately captured through the use of such proxies.

Whilst the study team recognises the current debates that seek to differentiate between cultural **services**, cultural **benefits** and cultural **values** – and the conceptual framework that is being developed within the National Ecosystem Assessment follow-on work – this EcoLaP study uses a definition of cultural services that is based on the Millennium Ecosystem Assessment, namely:

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[8] Pungetti, 2013
[9] European Commission 2013

- cultural and spiritual values
- heritage, and artistic expressions
- sense of history and memory
- sense of place and home
- identity
- inspiration and stimulus
- calm, relaxation and tranquillity
- leisure activities and recreation
- sacred landscapes, sites and species
- religious practices and spiritual believes
- ecological traditional knowledge
- rights for landscape, nature and resources
- security, well-being, relationship development
- local communities practices and governance
- learning and education
- escapism, i.e. getting away from it all.

From this, it may be explicitly noted that the study team does not equate the word 'culture' with the arts. Whilst some current work has made this interpretation, it is necessary to clarify that, whilst the arts are part of culture, the definition of 'culture' goes much wider than this.

Further, we have included certain additional social and economic landscape services that are not strictly 'cultural', but which otherwise would not be included in an evaluation of econet benefits. These include:

- social and personal benefits from engagement in landscape-based activities[10], such as the companionship and socialisation that may be experienced through participation in green gym, community gardens, etc.
- benefits to society from landscape-related activities which assist rehabilitation of offenders, and restoration of individuals with learning difficulties or mental health conditions[11]
- engagement of businesses in landscape activities as part of their corporate social responsibility programmes[12]
- benefits to local businesses through 'landscape premium' – i.e. where landscape attributes can be used to promote green and resource-based tourism, speciality food products, etc.[13]

Not all cultural services are perceived as benefits by all members of the public – indeed, some may be perceived as disbenefits. Examples may include the perceived risk of crime sometimes associated with tree cover, damage to crops (e.g. from deer and geese), risk of flood hazard from 'naturalistic' river management schemes, increased litter and vandalism

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[10] Åberg and Tapsell, 2013
[11] Bratman et al, 2012; Roe and Aspinall, 2011; Abraham et al, 2010
[12] Morris and Urry, 2006
[13] Maruani and Amit-Cohen, 2013

from recreational access, and so forth[14]. Often, these legitimate concerns can be overcome through consultation and participatory design.

3.5   Public Perceptions

The establishment of ecological networks and the re-establishment of ecological processes, particularly at the large-scale, will have an influence on an area's landscape characteristics and functions and the way people perceive and value them. The study brief discusses the need to find effective ways of capturing the public's perceptions of landscape change, and of the aesthetic and cultural values of these areas.

Whilst an understanding of 'public perceptions' of ecological networks is core to responding to the brief, some care may be necessary when using this term. In some contexts, the word 'perception' can imply the wholly visual – yet it is generally understood that people experience and interpret the landscape not only through sight, but also other senses[15]. It is also important to note that perceptions are influenced by social and cultural references that lead to our interpretation, not only of what is seen/heard etc., but also what is thought of as good/bad, polite/impolite, and so on[16].

This need to explicitly recognise other senses, as well as the interpretation of those sensory inputs, has led to the suggestion of using an alternative phrase, namely "cultural values". This term explicitly includes tangible and intangible perceptions and also explicitly includes the benefits that are derived from landscapes[17].

Landscape perception studies have often focused on 'preferences'. That is, methods have been developed to suggest that some landscapes are superior/ inferior to others, or provide some attributes that are preferred by certain active or passive users[18]. This study does not address this aspect of 'perception', which is largely concerned with the relative evaluation and characterisation of existing scenery.

So the term 'perception' is understood in this study, not in the narrow sense of 'visual preference', but rather all the ways in which people grasp the values and qualities of a landscape. It includes visual perceptions, people's valuation of monetary and non-monetary environmental benefits, the apprehension of patterns and processes in people's surroundings, seen and unseen links with history and culture, and perceived opportunities to participate in and learn from landscapes. Often, perception is a relatively 'passive' activity, relating to the 'gaze'. Indeed, the 'affordances'[19] of landscape are often perceived subliminally. However, sometimes perception relates to active engagement such as involvement in conservation volunteering and arts-based creativity. Unless people actively engage in physical and mental activity in this way, certain cultural services remain unaccessed – and therefore non-existent.

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[14] Olson, 2013; Wolfe and Mennis, 2012

[15] e.g. O'Connor, 2011

[16] Burton, 2011; Gobster et al, 2007; Selman, 2010

[17] Stephenson, 2007

[18] Edwards et al, 2012

[19] The theory of affordance originates from the perceptual psychologist J. J. Gibson. Affordance refers to the relational and functionally significant properties of the environment and includes both actual and perceived properties, which exist independent of the individual's ability to perceive them.

This study therefore considers active engagement as an aspect of both consultation and execution.

The study also needs to be clear about its interpretation of 'the public'. Everybody is a member of the public, but there is a broader sense of the 'general public'. Hence the study recognises both specialist publics and the general public, with an emphasis on the latter. Even members of the 'general public' may be associated with particular interest groups. Relevant publics might include, for example: farmers, residents living in flood hazard zones, doctors prescribing health walks, single interest groups such as bird-watchers or anglers, and schools undertaking environmental education. Whilst it has been impractical for the study to embrace every nuance of 'the public interest', it comments on the variety of measures that would be necessary to ensure that a diversity of public perceptions is included. Such measures would also be likely to tap into the deposited memory and insights that are often summarised as 'lay knowledge'.

3.6   Landscape Change

The concept of an econet may imply a change from the existing landscape (in terms of both character and function). This, in turn, requires an understanding of how the public responds to potential and actual change in familiar landscapes.

The research reported here is not only about the perceived cultural values of econets, but also about how the landscape change associated with future econets is perceived. Perceptions of landscape change have been addressed in various ways in the literature, for example:

- scenario approaches which visually depict alternative future landscapes. As perceptions may sometimes be non-visual, some of these methods may include simulation of other sensory stimuli, particularly sounds
- multi-method (qualitative and quantitative) approaches to exploring the values that people perceive in the present landscape, potentially providing the opportunity to compare these with a postulated future landscape
- studies of changing tastes and preferences in landscape. Although these may not be practically applicable in econet planning, they may provide insights into the ways that, for example, resistance to landscape change alters with experience
- approaches to mediating planned landscape change, so that public concerns (e.g. about potential flooding, or crop damage by wildlife) can be mitigated by programme design
- monitoring public perception over time, including the evolving ways in which people access cultural services.

As this study concerns future econets, its approach to change entails:

i) understanding how and why people currently value their landscapes, partly to provide context for the changes implied by the establishment of an econet and partly to provide advice on the localities that are currently highly valued, and might therefore better remain unchanged or considered differently

ii) understanding the public's response to the components of planned change (removal/creation/alteration of habitat) that are associated with the creation/ modification of an econet

iii) understanding the implications of these physical changes on the the public's appreciation and enjoyment of the landscape(s) in question. These changes could be beneficial or detrimental (or both). They could include, for example, enhanced or restricted access, wider or reduced views, untidier places, changes in the number and type of wildlife species, altered levels of flood risk, or areas that become inaccessible because of wetland recreation for water storage.

Given the great difficulty (and questionable value) of evaluating perceptions during the transient states that occur during change, the assessment will essentially relate to the 'post-change' situation. For practical purposes, we suggest here that the benefits to specialist publics (e.g. 'green' marketing, environmental education, angling) can be predicted from good design and specific consultations, and that the main challenge is to elicit from the 'general public' the perceived existing benefits and the perceived benefits/disbenefits in a future econet.

4.   Background to the Study

4.1   The Econet Context

Throughout history, England's landscapes have evolved in response to changes in land use, landscape structure and agricultural practices[20]. With these changes have come adjustments in wildlife habitats and movement of species. However, with the increasing intensity of agriculture in the last century and the development of traffic infrastructure, extensive fragmentation has taken place and, accordingly, biodiversity has declined [21]. This has resulted in the unwitting creation of core areas of species-rich habitat, often separated by wide areas of low biodiversity and poor habitats that cannot support species richness[22]. The problem has been intensified through climate change, which has affected the ability for species to adjust to the changes in temperature, humidity, seasonality and habitat areas, and therefore requires measures for adaptation[23].

Even on their own, core areas have implications for the long-term survival of species. Yet, ecological connectivity can be supported with a proper system of ecological corridors and stepping stones that connect core areas, in turn surrounded by sufficient buffer zones. All these elements form an 'ecological network', which has been proposed in the last two decades by ecologists and landscape ecologists as a potential solution to environmental fragmentation and climate change mitigation[24].

Until now, the design and creation of ecological networks – often abbreviated as 'econets' – has been based predominantly on (natural) scientific principles. Nevertheless the creation of an econet, whether rural or urban in nature, also has human and cultural implications. On the one hand, ecological understanding is required to support species and habitat connectivity and migration. On the other hand, socio-cultural consideration is essential in designing and planning the network, particularly at the landscape scale, both for the inclusion of stakeholders and for their understanding and acceptance. In the 'greenway' approach (such as developed in Florida[25], but also in Portugal and in Berlin, networks are explicitly both for people and wildlife, linking urban environments with the countryside and wild nature[26]. In the last decade this has been increasingly accepted in other parts of Europe[27]. Socio-cultural inclusion does not just entail a passive approach to soliciting public attitudes, but also measures to change and influence them, and in doing so, increase awareness and understanding of the value of the natural environment.

In addition to delivering ecosystem services, healthy habitats, landscapes and landscape features also deliver cultural services to people. Contributing to well-being, a sense of place and reinforcing people's relationship with the landscape, these cultural services can include identity, inspiration, tranquillity, spirituality and education[28]. From the Experiencing

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[20] Rackham 1986, Jongman 2002
[21] Rackham 2001, Petit 2009
[22] Bennett 1991, Cavalchi and Pungetti 2000, Jongman and Pungetti 2004, Jongman et al, 2004
[23] Grove and Rackham 2003, Bouwma et al, 2012, De Victor et al, 2012
[24] Jongman and Pungetti 2004, Cobben et al, 2011, Jaeger and Madriñán 2011, Johst 2011, Verboom et al, 2011
[25] Hoctor et al, 2004
[26] Fabos 1995, Ahern 2004
[27] Jongman et al, 2011
[28] Harrison et al, 2010

Landscapes studies, the study team is aware that the delivery of these cultural services is influenced by the context, shape and nature of the landscape, as well as by the presence – or absence – of landscape features[29]. It follows that the establishment of econets and potential landscape change is likely to have an impact on the delivery of cultural services, although it is not yet clear whether this impact will be more positive or negative[30].

The establishment of econets, whether rural or urban, clearly has other implications, both in terms of wildlife habitats, and in the delivery of other ecosystem services such as flood alleviation, carbon sequestration and water or air purification. Numerous studies have previously shown that people value the presence of wildlife species, and that the benefits, whether expressed qualitatively or quantitatively, can be enhanced through the establishment or protection of wildlife habitats[31]. There is also limited research showing that people gain value from the improved provision of other ecosystem services, such as improved air quality or flood alleviation, although the evidence here is less clear.

The human dimension of econets is also important when it comes to the public domain, for example in econet design and planning[32]. In the design of an econet, the concepts can often be developed through the inspiration and background of local populations, while in planning an econet the strategy can be put forward with the know-how and approval of the local stakeholders. In addition, it has been demonstrated[33] that sound implementation of an econet cannot be achieved without the support of local people, both stakeholders and volunteers. They are necessary to concretely see through the implementation of the plan and to continue the management of the habitats in question[34].

It is therefore clear that the econet concept embraces both ecosystem and cultural services. Some recent studies have suggested, with some justification, that ecosystem services should include or even be re-interpreted as landscape services, to reflect more accurately their spatial expression[35]. However, given the widespread policy endorsement of the term, we continue to refer to ecosystem services, affirming their inclusion of socio-cultural services, and their public perception and spatial expression.

4.2   The Planning Context

Although the EcoLaP study does not require an investigation into the governance aspects of participation in landscape planning, these are still of interest, especially where they relate to the ongoing implementation[36] of networks, and not only to their initial design.

Currently the highest tier of landscape planning[37] is the framework set by the European Landscape Convention (ELC). Amongst other things this requires methodologies relating to:

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[29] Research Box et al, 2009, 2011
[30] Gantioler et al, 2012
[31] Primdahl 1999
[32] Pungetti and Romano 2004
[33] Pungetti 2001, Jongman and Pungetti 2004
[34] Y2Y initiative 2006, Jongman 2011
[35] Termorshuizen and Opdam 2009, Harrison et al, 2010
[36] Wende et al, 2012
[37] Selman 2006 and 2012

- landscape characterisation;
- public participation; and
- setting landscape quality objectives.

It is plausible, therefore, that econets would be established where character analysis had suggested that fragmentation had occurred, and where the landscape would benefit from restoration or fairly rapid change. There are a number of methods that have been employed to include cultural associations and public perceptions connected to landscape character.

The ELC further requires signatories to establish procedures for the participation of the general public and others. Again, numerous methods now exist to engage the public both in a governmental context (e.g. decision-taking and plan-making) as well as part of ongoing exercises in monitoring, mapping and community action.

The decision to create an econet assumes that some form of objectives have been set. The ELC has formalised these into 'landscape quality objectives' (LQOs) that, axiomatically, require public input in their formulation.

The relatively short-lived regional authorities in England had, by the time of their abolition in 2012, made significant progress in various forms of landscape planning, particularly in the context of Regional Spatial Strategies. These had entailed regional analyses of landscape change, regional landscape character maps, and regional analyses of biodiversity resources and their associated ecosystem services and multifunctionality. In some cases, these had been interpreted in terms of regional green infrastructure and 'pinch points' where infrastructure connections were weak.

In terms of the statutory planning system, the main framework for econets is the Local Development Framework, especially where they are associated with green infrastructure. They may well sit alongside related Supplementary Planning Documents such as Landscape Character Assessments and Landscape Strategies. As such, they will have been subject to pertinent methodologies associated with the Statement of Community Involvement, strategic environmental assessments, and sustainability appraisals. Within these contexts, various generic types of methodology have been applied.

Often, however, econets are being established in land use settings that lie largely outside the statutory planning regime. This is particularly true for rural initiatives and, consequently, for most NIAs. Here, greater reliance must be placed on partnerships with landowners, land managers and other actors. Nevertheless, some of the methods associated with the statutory spatial planning process, such as community engagement, can be adapted for application in these settings.

4.3   Governmental Practices Associated with the Wider Landscape

In a 2009 study, Caspersen describes a process in Denmark that was used to engage the public in a Landscape Character Assessment (LCA) that occurred within a wider participatory process for a "2020 Vision". During this process, large public meetings were combined with smaller meetings with community and working groups, aiming to tap into multiple stakeholder viewpoints and local knowledge. It is notable that this was not solely part of a one-off governmental process. It also resulted in long-term LCA outputs, raised levels of

awareness amongst local communities and continuing engagement with landscape issues. Whilst contributing to a specific governance process was important, the benefits were wider.

It was found that this particular participatory process provided an important base for more qualified decisions regarding landscape issues, and yielded particular benefits at the local scale because of citizens' local knowledge of their landscape and its associated narratives. In this way, future conservation and management of the local cultural heritage benefited from including features that were known just to the local community, but were at the same time important to their sense of place and to recreational opportunities. It appeared that a greater awareness regarding the LCA procedures and local heritage could be achieved by relatively simple means, albeit more work was thought necessary in order to attract non-participating groups and stakeholders.

The components and purposes of the relevant Vision 2020 working group (Accessibility and Cultural Heritage) are summarised here:

Activity	Aspect of the process	Output	Comments
Working group meetings 1-3	Set up of LCA workshop and public meeting	Posters, maps, recording sheets Draft Vision 2020 input	The 12 members of the working group attended and developed a first Vision 2020 draft from group 7
Local community meetings 1-5	Intro 1 and debate	Draft of the working group input to Vision 2020 presented	Stakeholders' comments and proposals recorded
	Intro 2 and debate	LCA and local descriptions presented	Local Cultural heritage discussed
	Workshop session 1	Designation of local heritage	Stakeholders designate local heritage on municipal maps
	Workshop session 2	Designation of future facilities	Stakeholders propose and designate future facilities. Focus was especially on better accessibility
Working group meetings 4-9	Revision to drafts	Redrafting of Vision 2020 input Local cultural heritage being addressed	Redrafting is being conducted after each local community meeting by working group 7.
Field inspections	Verification of stakeholder input	Completion of existing maps and LCA descriptions based on stakeholder input	When confirmed and geo-referenced, stakeholder inputs weres added to the GIS database
Working group meeting	Revision to drafts	Posters, maps, and final Vision 2020 input and flyers produced.	After the 5 local meetings, the various drafts were finalized
Public consultation event	The ten Vision 2020 working groups present their findings to the City Council	Cultural heritage map presented Future facilities map presented Vision 2020 flyers submitted to City Council	Each group was given 10 min. to present their proposals to the City Council followed by debate.
WEB GIS	Updating GIS database	LCA GIS database updated by verified stakeholder input. Map representing local cultural heritage produced	This data set was prepared for the municipal web GIS and published on the municipality's public website

Collier and Scott[38] provide an example of the use of focus groups, and associated content analysis and discourse analysis, in exploring landscape perceptions. Their research related to industrially mined peatland landscapes in Ireland, for which conservation-related after-use strategies were being considered. The findings indicated that participants were generally

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[38] Collier and Scott 2010

receptive to amenity and biodiversity as major elements in future use, and that a degree of social learning took place. The forums were thus not only important for establishing baseline information and for gathering views, but also for information exchange, opportunities to correct misconceptions and improving public access to scientific information.

As already discussed, one of the requirements of the European Landscape Convention is to develop Landscape Quality Objectives (LQOs) for landscape planning units, based on a participatory approach. This is acutely relevant to agreeing the form, content and collaborative implementation of econets, but has made only slow progress in the realm of practice, and is even more neglected by researchers. In one of the few critical explorations of LQOs, Ramos[39] examined how the development of 'exploratory landscape scenarios' could be a useful tool to find plausible landscape futures, as well as to trigger discussions with the public regarding their aspirations for their landscape. The author's method built on an 'intuitive logics' approach, aiming to produce a variety of scenarios as starting points for discussion about the future rather than seeking a single optimum future. Working in south-eastern Portugal, Ramos based this approach on the:

- identification of driving forces and critical uncertainties;
- definition of plausible futures 25 years from now (i.e. landscape scenarios);
- validation of the scenarios by an expert panel; and
- consultation of stakeholders.

The scenarios were illustrated by manipulated images, and these were debated by groups of local stakeholders, resulting in a degree of consensus about future objectives. As well as assisting in the development of landscape planning objectives, the author considered that the approach had provided a basis for communication between the local population and the competent authorities, had given opportunities to encourage a shift in attitude of the local population, and promoted awareness that the future is not already decided and that the public has an active role in shaping it.

4.4   Econet Development in the English Context

The idea of creating ecological networks by establishing conservation management over large areas of land has become a high profile issue in England and other countries. This is in response to an increased emphasis on making landscapes more resilient to present and future impacts of change by conservation outside nature reserves and/or making existing reserves bigger; to address habitat fragmentation and an overall continuing decline in biodiversity; to facilitate species movement in response to climate change; and in response to a growing awareness of ecosystem services and the spatial scales over which they might need to be managed. For instance, the scale might be a river basin, as it might require basin planning to allocate enlarged river forelands and restored wetlands. Ecological networks have become a particularly prominent topic in England following the publication of Making Space for Nature[40] and subsequent policy aspirations for ecological networks explicit in the Natural Environment White Paper and Biodiversity 2020.

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[39] Ramos 2010
[40] Lawton et al, 2010

As discussed earlier, Natural England is currently developing and gathering research and evidence to help support the implementation and establishment of ecological networks across England's landscapes. The aim of a number of research projects commissioned by Natural England is to use the research to bring greater trans-disciplinary working on landscape-scale conservation projects, with greater collaboration encouraged between ecologists, landscape planners and social scientists. This present study, focussing as it does on public perceptions, aims to provide a cultural perspective and will be combined with others that are exploring ecological networks through ecology, planning, and nature perspectives[41].

To date, there has been some limited development of econets in England.

The most notable of these has been in Cheshire where, over a period of nearly twenty years, the local authority has conducted, through a series of demonstrations, feasibility plans, development, and now implementation plans, a thorough assessment of the need for econets within the county. The first phase of the network (a sandstone ridge) has been implemented[42] but the project has, to date, not progressed further.

The concept of Nature Improvement Areas (NIAs) was introduced by the Government's Natural Environment White Paper to 'enhance and reconnect nature on a significant scale' in England. NIAs are designed to revitalise urban and rural areas by creating bigger, inter-connected networks of wildlife habitats to re-establish wildlife populations and help achieve recovery of nature. A total of twelve schemes were chosen for funding in early 2012. The twelve schemes are applying a variety of approaches, and at varied spatial scales.

The views of local publics have been (or are being) taken into account to a certain extent in the establishment of English econets (both in Cheshire and the 12 NIAs). However, an examination of the forms of public engagement planned or used suggests that most fall into the twin traditional definitions of i) stakeholder engagement and ii) public consultation. Stakeholders (land owners and managers, as well as other stakeholders such as parish councils) are closely involved in understanding the feasibility of creating an econet and in developing the plans – nothing being possible without the agreement of landowners, for example.

The involvement of the general public has tended to come at a later stage, specifically when the plans are being consulted upon before implementation. This has been not only to gather reactions to the scheme but also to engage the public and seek their willingness to participate in implementation of the network through various forms of voluntary work.

One example has been identified (in the North Devon NIA) where the views of the general public have been sought at an earlier stage of the econet design process. This example is also important in that it is the only case that we have been able to find in England where a cultural services approach has been used[43].

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[41] e.g. Moseley et al, 2013; Radford and James, 2013

[42] The project was supported by the Life-Environment Programme of the European Commission to demonstrate in Cheshire (and two localities in Italy) how ecological networks can help achieve more sustainable land use planning and management, as well as overcome the problems of habitat loss, fragmentation and species isolation.

[43] The research is summarised in the forthcoming chapter (Cultural Ecosystem Services and Indicators, WP4) in the NEA Follow-on Report.

To some extent, this might be a function of the limited guidance given to the NIAs by Defra and Natural England. The Monitoring and Evaluation Framework document (see page 19) sets out a few cultural service measures/indicators, most of which are in the form of proxies, rather than anything that would measure cultural services directly. This table is based on the relevant page of the Framework document.

Cultural Services	Local measures of extent of land managed to enhance landscape character
	Length of accessible PROW and permissive paths
	Condition of historic environment features
	Access to natural greenspace and/or woodland
	Optional local indicator that could be defined by NIA partnership

This issue of proxies, and how this study differs from a proxy-based approach for evaluating cultural services, has been addressed earlier (see the text box in Section 3.4). In general, however, we would expect that the consultation and design stage would explore cultural services and the perception of landscape change, in a broad manner.

Subsequently, some of the perceived changes in cultural services could be tracked during the early stages of implementation and delivery using a limited set of measurable proxies. It is axiomatic that proxies should be selected by virtue of their fidelity in reflecting cultural ecosystem services, rather than ease of measurement.

4.5   Direct Engagement of People in the Analysis, Design, Management and Use of Landscape

In an influential paper on the role of design in future landscapes, Nassauer and Opdam[44] argue for the integration of design practices into ecological analyses of patterns and processes. In case studies, the authors found that the inclusion of an active design method resulted in strong collaboration between scientists and practitioners, greater legitimacy of planned measures, and a more critical assessment of landscape functions.

One illustration of this more integrated approach between landscape design and ecosystem science has been through the use of 'Participatory GIS' (PGIS) technologies. These have been shown to achieve interaction between experts and landscape users, and to use these interactions to capture spatial information about landscape perceptions, qualities, experiences, environmental impacts and visitor needs. For example, Brown and Weber[45] describe a Public Participation GIS (PPGIS) exercise in the national parks of Victoria, Australia. The authors note that the method is one that displays 'sound science and social inclusiveness'. In essence, the researchers recruited a large sample of visitors to national parks and asked them to plot attributes on a user-friendly (internet-based) GIS. Participants were asked to plot

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[44] Nassauer and Opdam, 2008
[45] Brown and Weber 2011

'experience' variables (e.g. aesthetics, crowding), 'impact' variables (e.g. track condition, noise) and 'other' variables (e.g. special places). These were combined by the researchers into a small number of indicators that could be applied in park management. The study emphasised the 'instrumental' value of such information for managers, although other PGIS studies have been more exploratory in nature.

One aspect of direct engagement in landscape planning processes is the learning that might occur amongst stakeholder groups. This learning is important in its own right, but may also raise collective awareness so that planned landscape change becomes more accepted and understood. Indeed, it has been indicated that the landscape is a particularly vivid setting, and lends itself to opportunities for social and transformative learning in relation to emerging social-ecological issues[46].

Landscape and its associated issues provide an important setting for social learning and transformative learning to occur. Social learning occurs when people engage with one another, sharing diverse perspectives and experiences to develop a common framework of understanding and basis for joint action; transformative learning goes beyond this, by leading to changes in worldview and behaviour through discovering solutions that go beyond one's own limited vision of what was possible or sufficient. Brummel et al [47] investigated social learning in relation to wildfire management. Whilst this particular study did not necessarily involve direct engagement with the landscape, it offers an example of landscape issues providing a real and vivid context in which discovery and policy development could occur. The research methods were those typical of qualitative policy studies, primarily interviews and document analysis.

The researchers identified examples of emergence of social learning amongst planning groups, development of shared understanding and vision amongst participants, and inclusion of this shared understanding in wildfire plans. Whereas few examples of instrumental learning (i.e. acquiring new skills) were identified, a considerable amount of communicative learning occurred through groups improving their understanding of other parties' management interests, priorities and values. There were also examples of transformative learning in relation to new possibilities for integrated and co-ordinated management. In relation to landscapes, it is now being suggested that social and transformative learning is an integral part of resilience, as it helps to build adaptive capacity. Thus, resilience theory sees the landscape as a social-ecological system (SES), and this is now being extended to the notion of a social, ecological, epistemic system (SEES). McCarthy et al[48] show how this type of critical reflection has helped to reduce barriers and bridges to social learning in a case study of flood damage reduction in a remote First Nations community in northern Ontario, Canada.

4.6 National Ecosystems Assessment

The original UK National Ecosystems Assessment[49] (NEA) endorsed a taxonomy of outputs supplied by ecosystems, namely regulating, cultural and provisioning/supporting services. Importantly, these services lack a market price and thus are difficult to label and value. It

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[46] Selman et al, 2012

[47] Brummel et al, 2010

[48] McCarthy et al, 2011

[49] UKNEA, 2011

reviewed the condition of these services in terms of whether they were stable, improving or deteriorating, and suggested that many ecosystem services were still far below their full potential. It noted that a growing population and widening range of social-environmental impacts brought additional challenges. Whilst regulating and provisioning/supporting services were articulated in some detail, cultural services were confined to a limited consideration of 'environmental settings' (i.e. local places and landscapes).

Despite its rather narrow consideration of cultural services, the NEA recognised that environmental settings could be associated with a wide range of goods that emanated from culturally valued places, such as productive commodities (e.g. food, fibre, energy), security benefits (e.g. flood and erosion control), and social benefits (e.g. recreation, spiritual values, noise control, aesthetic value). These cultural values were associated with all the 'broad habitat types' identified in the NEA; we may reasonably infer, therefore, that they would also be associated with the future habitats resulting from econets.

The NEA identified cultural services as those that were derived from environmental settings (places where humans interact with each other and with nature). In addition to their natural features, the NEA suggested that such settings were imbued with the outcomes of interactions between societies, cultures, technologies and ecosystems. As such, they could provide opportunities for outdoor learning and recreation; in turn, exposure to these opportunities could deliver aesthetic satisfaction, improvements in health and fitness, and an enhanced sense of spiritual well-being. The NEA was unequivocal that failure to include non-market values in decision-making would result in a less efficient resource allocation; hence it was essential to convey the values of non-market ecosystem services to land managers. However, overall, the interpretive and practical detail given on cultural services by the NEA was quite limited.

A related report by Fish et al[50] identified relevant stakeholders as including scientific experts, policy experts and representatives from public, private or third sector organisations. Alongside specific stakeholders it also alluded to 'the wider public', that is, people who do not necessarily represent any formal or informal organisation in civil society but who nevertheless bring lay expertise to the process that can complement official/formal expertise. Participatory and deliberative techniques were identified as a means of unlocking stakeholder values, experiences and insights that might help to structure issues under investigation, inform specific assessments of service provision, and examine why and to whom these services matter. Such techniques could also help reveal the practical 'know-how' of stakeholders as well as identify socially and environmentally acceptable thresholds.

In a nutshell, current guidance[51] recommends that all decision-makers – from wealth-producing entrepreneurs to voluntary community groups – adopt an ecosystem approach. Such an approach considers whole ecosystems, values the services they provide, and comprehends the way that the natural environment works as a system. Significantly for the present study, current guidance suggests that an ecosystem approach entails thinking about the spatial scale of social-environmental interactions, and the people involved in supplying and receiving ecosystem services and benefits. It also advocates that practical tools are developed to facilitate this approach to decision-making. However, the whole notion of

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[50] Fish et al, 2011
[51] Defra, undated

cultural services remains relatively underdeveloped in current research relative to the nature and economic valuation of biological and physical resources. Work is continuing in relation to the transfer of benefits, and in due course this might inform the ways in which current cultural services and benefits can be imputed to future econets.

This initial exploration of cultural ecosystem services is being taken forward in the follow-on stage of the UK National Ecosystem Assessment (NEA2) which, *inter alia*, gives further attention to: cultural ecosystem services and how they can be better understood and operationalised into a range of decision making contexts alongside economic analyses; societal responses to possible future ecosystems changes; and the development of tools for use by a range of key user groups from the public, private and voluntary sectors. NEA2 aims to refine the conceptual and empirical notions of environmental settings, and clarify the terrestrial and marine spaces which constitute environmental settings, how landscapes relate to and constitute environmental settings, and the ways in which the significance of settings may change over time. Since environmental settings range in scale from the very local (domestic gardens and ponds) through to national landscapes and seascapes, econets clearly play an important part in this evolving continuum. NEA2 proposes to gather a range of empirical evidence regarding people's uses, preferences, benefits and significance of environmental settings.

4.7   Values that People attach to Ecosystem Services

Landscapes are rich amalgams of a wide range of human and non-human elements, both seen and unseen, and consequently of infinite variety[52]. They provide an abundance of services to people, in ways that benefit both our physical needs and quality of life. One of the most intractable issues in relation to the EcoLaP study is how to assess, map and quantify cultural ecosystem services.

Despite its methodological challenges, one of the best-known examples is the attempt to map tranquillity by CPRE et al[53]. This intangible topic was first defined using a participatory appraisal approach, working with groups of people. The researchers used non-directive questions to stimulate participants to discern their perceptions, values and beliefs, and express these through a range of user-friendly techniques such as spider diagrams, 'graffiti walls', visual representations, mapping, bean voting, circle diagrams and unstructured interviews. Having defined tranquillity in a way that could be operationalised, its elements were then matched to nationally available datasets, by reference to a project steering group and literature review. Models were constructed of contributory factors likely to be associated with 'people', 'landscape' and 'noise', and how these contributory factors might be mitigated or intensified by physical environmental properties. Further weighting and adjustment of variables then allowed maps of relative tranquillity to be produced by GIS.

A recent study in East Germany[54] involved spatially explicit participatory mapping of the complete range of cultural ecosystem services – and some 'disservices' – as perceived by local residents. Their methods included a combination of mapping exercises and structured interviews, analysed by statistical and GIS-based techniques. Evidently, respondents related

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[52] Stephenson 2008
[53] CPRE et al, 2005
[54] Plieninger et al, 2013

diverse cultural services and multiple local-level sites to their individual well-being, especially in relation to aesthetic values, social relations and educational values. Cultural services were found not to be scattered randomly across a landscape, but rather to follow specific patterns in terms of the intensity, richness and diversity of their provision – thus, hotspots and cold spots of ecosystem services provision could be related to landscape features and land cover forms. Their study contains a number of interesting statistical and definitional approaches to the problem of identifying and quantifying ecosystem services, and of associating them with landscape features and social desires. Another useful insight was that, as might be expected, there is considerable overlap between individual services, indicating that people do not necessarily separate one cultural service category from the other clearly. In terms of the role of social sciences in econet planning, the authors make some telling observations, notably:

- cultural services are, in contrast to most regulating and supporting services, directly experienced and intuitively appreciated by people. Therefore, they are motivators for owning, managing, and conserving land, often being even more important than traditional livestock or timber production
- most cultural services are enjoyed in "bundles" and can thus foster the orientation of ecosystem services management toward multifunctionality. As such, the holistic nature of cultural services can help overcome the widespread tendency to design incentive tools for individual ecosystem services in isolation, which often has been accompanied by unintended side effects on other ecosystem services.

They therefore suggest that the objectives of natural scientists will be better met when accompanied by an explicit inclusion of 'soft' ecosystem services. One interesting possibility is that the measurement of public interest in econets should not be based purely in visual apprehension, but should also consider active engagement in the landscape as a way of experiencing and valuing it. It is possible that many people hardly notice the landscape quality or components in an explicit way, especially in everyday landscapes, but do have strong emotional and psychological associations connected to physical activity and social encounters.

Scott et al,[55] specifically explored the aspect of 'non-visual' perception of landscape, notably that appreciation of landscape might be acquired through doing activities in it rather than simply looking at it. Working with different groups of people, the researchers recorded verbal and non-verbal expressions of engagements based on walking, mountain biking, land management and other activities. The qualitative methods adopted were those typically used for grounded theoretic investigations – such as non-directed questioning and prompts, audio recording, and observation of body language. This was an innovative study of non-visual experiences of landscape and the values that accrue through 'doing' and 'using'. The researchers were able, amongst other things, to show how landscape experiences were often secondary to other primary activities, and also how they might be enhanced by undertaking such activities as part of a group.

Another study[56] considered the effect of 'bodily engagement' in landscape on perception and preference, by comparing the perceptions of landowning families and hiking tourists in

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[55] Scott et al, 2009
[56] Eiter 2010

western Norway. The author found, for example, that an appreciation of a sandy beach at a lake could be an expression of leisure use, whereas bedrock rich in nutrients and large amounts of wavy hair-grass were appreciated by an interviewee who was practising dairy farming. Again, it appears that activity within landscape affects both appreciation and perception of it.

4.8   Perceptions of Landscapes and Landscape Change

One concern amongst planners of econets is that landscapes designed for biodiversity and multifunctionality might conflict with the public's aesthetic preferences. Aesthetic perceptions of 'ecological' landscapes have been investigated in a number of studies. For example, Junker and Buchecker[57] examined the relationships between aesthetic preferences and ecological objectives where rivers were being restored to more naturalistic conditions. Hence, they considered the interface between ecological quality as evaluated by experts and people's evaluations of visual attractiveness. This entailed using some interesting measures of naturalness in rivers, as a consistent yardstick against which to evaluate viewers' responses. The study sought to answer four research questions:

- does the public's perception and assessment of the naturalness of different river restoration scenarios correspond to experts' assessments of eco-morphological quality?
- how does perceived 'naturalness' relate to people's aesthetic preferences?
- how do the perceived satisfaction of needs and the usability of river restoration scenarios for recreation and leisure purposes influence people's assessments of their aesthetic appearance?
- to what extent can people's aesthetic assessments of river restoration scenarios be explained by the variables: ecomorphological quality, perceived naturalness, satisfaction of needs and suitability for recreation and leisure purposes?

Their method entailed volunteers evaluating visualisations of varying degrees of 'before and after' treatment of stretches of rivers – through Likert-scale responses – and posing various questions about perceived naturalness and potential amenity, as well as known influential variables such as level of education and age. Statistical analysis – notably F-tests – of the data indicated that:
- public preferences are more compatible with nature conservation than is often thought and more than planning authorities tend to expect;
- public perceptions of the naturalness of different river restoration scenarios coincided more closely than expected with expert assessments of ecomorphological quality;
- there was a very strong relationship between perceived naturalness and aesthetic preference – but this relates to what people perceive as natural rather than actual naturalness; and
- how well a river restoration scenario is perceived to satisfy people's needs – and thus how suitable it is for recreation and leisure purposes – strongly influences how positively they assess its aesthetic appearance. Although, perhaps reassuringly, people generally appeared not to require recreational infrastructure in more naturalistic stretches.

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[57] Junker and Buchecker 2008

Overall, it could be argued that the paper gives support to the idea of an acquired ecological aesthetic – that the better people understand the reasons for restoration, the more they are likely to like them. Thus, the authors conclude:

> *"The fact that perceived naturalness related so strongly to aesthetic assessments of river landscapes despite the clear gap between how the public and how experts perceived naturalness suggests that more effort should be made to inform the public about the impact of river restorations on the naturalness of rivers. People tend to value small restoration efforts. The potential gain in ecological quality brought about by restoring rivers to the highest possible level of eco-morphological quality needs, therefore, to be communicated more clearly and insistently".*

One of the few studies to investigate Bourdieu's notion of the acquired aesthetic in relation to landscape[58] explored farmers' perceptions of what they saw and appreciated in the landscape, and how these contrasted with other groups – most particularly, why farmers appreciate tidiness whilst others prefer higher degrees of naturalness. Based on a series of interviews, the study was able to relate the findings to Bourdieu's notions of 'habitus', relating to a culturally related group of people who have acquired a common world-view, and 'cultural capital', or the embodied knowledge of practices. It seems clear, therefore, that appreciation of a landscape is based not only on artistic composition, but on an acquired understanding of favourable features in the landscape to meet personal objectives.

Economic analyses of landscape values and services are well-known. Indeed, the valuation of contingent markets in landscape goods is almost the default method of incorporating people's views into landscape policy. An interesting use of willingness-to-pay methods is provided by Hanley et al[59] who used it to ascertain, in relation to the Lake District and Trossachs national parks, whether attitudes towards future landscape change are influenced by knowledge about past evolution of a landscape. This is of particular interest in terms of its potential relationship to 'futurescapes'. They found that either knowing that a landscape was different in the past, or knowing that perceptions of it have changed over time, seems to reduce preferences for keeping the landscape as it is today, and to increase preferences for changing this landscape in the future.

In other words, becoming aware of landscape as a dynamic concept whose physical structure and perception varies over time decreases the demand for the status quo; becoming aware of landscape as a dynamic concept also increases interest in 'improving' landscape quality. They concluded that land managers and all those with an interest in the protection of natural environments might thus wish to consider both how landscapes have actually changed over time – for example, in terms of the desire to return a national park to some 'traditional' means of land management – but also to consider how peoples' perceptions of the living history of a landscape helps determine what they wish to see happening to this landscape in the future.

4.9   The Rationale for Cultural Values

Earlier, it was noted that, whilst generic methods of public engagement and consultation fall within the local statutory framework, there is no explicit requirement to engage the local

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[58] Burton 2012
[59] Hanley et al, 2009

population through research or consultation. This is particularly so since econets are often being established in land use settings that lie largely outside the statutory planning regime.

Why should landscape and ecology professionals incorporate 'cultural values', in terms of public perceptions of culture and nature, into the design of econets? If there is no specific policy framework that requires the input of local people at the design stage – bearing in mind that the involvement of people will probably have budgetary implications – there is no clear obligation or incentive for those planning them.

In theory, the rationale for incorporating cultural values lies in delivering landscape and cultural services through ecological network design, planning and implementation. In doing so, the ecological networks will support sustainable development, in terms of connectivity and biodiversity conservation, human well-being and cultural-natural resilience[60].

The study team has identified a number of tangible and intangible benefits that may flow from actively involving the public and incorporating their perceptions in econet design. These include:

- recognition that local landscapes have meaning to people and that their beliefs and opinions count
- provision of evidence that the designers have recognised the cultural impacts of their design, as well as that of other ecosystem services
- evidence that local inputs have been taken into consideration, through local participation and involvement (a bottom-up approach)
- an improved design that has meaning for people and their use of the landscapes in question
- better social connectivity and community coherence
- greater support, engagement and commitment from local people
- the mutual understanding of public perceptions, on the one hand, and technical solutions at the landscape level for societal problems on the other – overcoming fear for changes, resistance and addressing conflicts at an early stage, before opinions have become entrenched
- future management and maintenance that is more effective and affordable, through the commitment of local people, leading to a more sustainable outcome

Conversely, there are a series of potential risks from not building public perceptions into the design stage of econets, including:

- potential community resistance to the concept or its implementation
- more specific protest from particular groups in the local population
- eventual failure of the econet through a lack of commitment and resource from local people (econets are not sustainable without their involvement)
- cultural alienation, leading to a decline in use of the landscape by local people and a loss of local identity
- missed opportunities for education or recreation
- potential problems arising from actual or perceived negative aspects of the econet.

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[60] This also implies understanding why some parts of nature are needed (floodplains) and why some are cultivated or culturally changed (heathlands) to perform an ecosystem service in the past, present or future.

There is some evidence that these benefits can be attained, and problems avoided, from a number of existing projects that have mapped, planned and monitored cultural ecosystem services[61].

But we also need to be careful here about the term 'public'. There may be different publics, such as the general public and specialist publics (e.g. farmers, volunteers) who may shift camps depending on the context. Engagement of 'the public' does not always mean participatory techniques which aim to reflect the views of a balanced, non-partisan profile of the catchment population – teachers, conservationists, farmers, anglers etc are all members of 'the public'.

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[61] Alessa et al, 2008; Hernández-Morcillo et al, 2013; van Berkel and Verburg, 2012; Pinto-Correia and Carvalho-Ribeiro, 2012

5.   Review Findings

5.1   Introduction

This chapter contains the principal findings from the initial literature review that formed an early part of the study. A more detailed report has been issued to the client.

In the literature review, various studies were examined and analysed at both international and UK-wide levels, including six previous projects at the international level and eighteen projects at the national and local level in England and the UK.

The key findings of the review are outlined in the following section of this report.

5.2   Implications for Ecological Network Implementation

Econets in cultural landscapes depend heavily on social input, a point that is universally recognised in published econet literature. In practical terms, this has major implications for network implementation and methodology. A few implications are:

- governmental practices associated with the wider landscape framework of econets, specifically in relation to particular points of decision-taking and plan-making;
- direct engagement of people in the analysis, design, management and use of landscape, as an ongoing activity and mutual learning process, possibly associated with longer-term attitude formation;
- values that people attach to those ecosystem services, including cultural services, associated with econets; and
- perceptions that people have of their landscape, and of ways in which it might change.

5.3   Public Perceptions of Econets

The review demonstrated the hypothesis stated in the proposal for this study, which is that the perceptions of the public matter. It has also confirmed that public perceptions have featured rarely when econets have been planned or designed, although rather more in their establishment.

The initial considerations of the research team were also confirmed. First is the scope of human impacts on econets – the effect that they may have on ecosystem, cultural and landscape services[62]. Understanding of perceptions sometimes requires a separation of the assessment of cultural services from other ecosystem services. For the latter, human impacts on habitat quality, species and biodiversity can be considered parallel to flood alleviation, carbon sequestration and other common areas of concern. The issue has further complexity due to the sometimes overly-positive reactions, and consequently high values, that people have for example to certain wildlife species and their preservation.

Second is the nature of 'change'. The establishment of econets diverts the course of history from the status quo to a new future for habitats where species are free to move within the

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[62] Gantioler et al, 2010

network. Nevertheless, there are some issues concerning the ability of people to imagine such change. For instance, not only are memories of landscape change often fuzzy, but people also find it hard to conceptualise future landscapes, both in terms of visual form and content, particularly since the change may often be accelerated and planned. It becomes therefore important to find the optimal way of conveying the impact of change, possibly drawing on best practices.

Third is the form of the public perceptions to be gathered. Qualitative research techniques can be employed to gather qualitative information, such as emotions, feelings and beliefs[63]. However not every professional can necessarily appreciate and use such rich information, particularly if it is subjective in form. Other techniques have been applied in research, including the use of questions aiming to quantifying qualitative beliefs through the use, for example, of 5-point Likert scales.

It should not be assumed that all perceptual impacts would be positive and immediate. Early work in the Netherlands, for instance, showed initial public resistance to the use of ecological methods to introduce native species as a way of landscaping urban spaces, as it was perceived to be 'scruffy'. Yet, over time, public acceptance of the approach increased, as general understanding of its underlying rationale grew, and as the new landscapes became more familiar. It appears that there is now widespread public acceptance of the use of 'ecological' design strategies in urban green space, both in terms of aesthetics and sustainability[64].

In this context, just exploring current public perceptions was not sufficient for the EcoLaP team, and the review moved to investigate econets in the context of planning and governmental practices. Public engagement has been thus examined in ways that help people understand the issues and contribute to design and maintenance. Engagement is multi-faceted and ranges from simply seeing the landscape (often subliminally), through engagement in formally organised 'participatory exercises', to engagement through activities (green gym, allotments, volunteering and farming) and through social learning (children and elderly). This latter issue is important, since public perception is dynamic and susceptible to education and social know-how.
Finally, in embracing a social-cultural approach, economic challenges may also be an issue. Many studies, particularly in the context of species preservation, have gone further than qualitative or simple quantitative data, and sought to derive monetary values for the non-market benefits that species can deliver, through the use, various 'willingness-to-pay' approaches. Monetary values, no matter how overstated they may be, do have the advantage of being expressed in a metric that can be directly compared with other financial data. This is a further issue to take into account.

5.4   Tackling Public Perception in the Context and Planning of Econets

Public perception is undeniably an important issue to take into account when planning for econets. Moreover, plan implementation requires a sound understanding of the development that the plan proposes. This requires in turn considering perceptions of the meaning of that precise landscape being planned, and of the functions of its elements. Such functions are not

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[63] Research Box 2009, 2011
[64] Ruff, 2002; Hoyle 2012

only ecological, but also social and economic, and this implies considering public perceptions.

It has been suggested that some landowners and land users may be reluctant to create wildlife features (that may also potentially become formally protected in some way, such as SSSIs or Tree Preservation Orders) because of concerns about them becoming future burdens and constraints on their land. Clear evidence for this arose from research into the implementation of the national ecological network in the Netherlands. It was reported that, when farmers became aware of conservationists' aspirations to designate their land as 'nature areas', they became very defensive. Conversely, when proposals were presented as 'landscape' (or elements of landscape) it was often found that the same landowners and farmers voiced support, since they did not perceive any threat[65].

Similarly, landscape consumers perceive notable benefits from econets. Econet elements such as ecological corridors or stepping stones (e.g. hedges, trees and ponds) are appreciated by urban and suburban dwellers (although these people, as in the case of Denmark, are often those who clearly support green infrastructure implementation). In the case of Moravia, moreover, farmers together with NGO Veronica have restored hedgerows belonging to an ecological structure existing since collectivisation. Their argument, inherent to everyday life, was to prevent soil erosion, to restore traditional landscape, to promote outdoor recreation and hunting, and to conserve nature. Thus their perception of a living landscape made them positively evaluate the econet that supported it, and vice-versa.

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[65] Beunen and Hagens 2009

Regarding public perceptions, three main aspects have been identified:

  a) perceptions specifically of a network
  b) perceptions of benefits related to the network; and
  c) perceptions that are not always visual.

Perceptions specifically of a network could be emotional and cognitive reactions to visually perceiving the actual network. One could argue that few of the public would actually perceive a network, except perhaps in relation to a traditional farmed landscape with lots of field boundaries. However, some literature suggests that people like landscapes that have econet characteristics. For instance, patterns and rich structures concur with people's need for visual complexity, provided that fragmentation processes have not gone too far and resulted in a visually chaotic landscape.

Perceptions of benefits related to econets, moreover, could occur even though the network is not 'visually apprehended' as such, when people appreciate things that would not be so abundant if there were no functional econet. For example, there is empirical evidence that people can intuitively perceive high biodiversity – or, at least, proxies for high biodiversity. There is also evidence that people value the cultural capital in complex landscapes, and can help with the mapping and valuation of social and cultural ecosystem services. These would tend to be enhanced where effective spatial connections exist between individual hotspots, although people may not be aware of landscape connectedness as such.

Perceptions are not always visual. People could not consciously 'view' the landscape every time, especially when that landscape is very familiar – something which is difficult for landscape experts to appreciate as they are trained to assess and 'gaze' at it. Experiences, which may include important types of local knowledge, may be imprinted on the memory in combination with the landscape setting.

This type of embodiment has, for instance, been explored through 'walking geographies'. Here the perception may be implicit and subliminal, and yet may help people to perceive 'affordances', i.e. opportunities for doing specific things, in the landscape. This moreover may have particular significance to econets in a living landscape, such as urban cycle paths, where the network topology matters, proving again a key finding of this EcoLaP study, i.e. that econets, generally, have to be about more than biodiversity.

5.5 Landscape vs Econet: Lessons Learned

Econets

That little consideration has been given to public perceptions in econet development became obvious from the literature review. Clearly, European econets have mainly focused on ecological issues, as they were originally developed to solve ecological problems. With time, however, this ecological connection has been used to link key territorial areas such as city and countryside. In this context, movements like the European Greenway Association have emerged and econets have been developed as green infrastructure to connect urban and rural environments. Initiatives of this type require further examination.

The paucity of existing good practice and directly-relevant evidence also emerges from this theoretical study. Although the review found examples where the public's views and reactions have been solicited, the ways that these have been used were not really pertinent to this study. The involvement of the public has been, for example, to encourage wildlife-friendly gardening and conservation volunteering, but not to specifically involve them in appreciating or reinforcing econets *per se*. Any explicit involvement in the development of network attributes has tended to be with 'specialist publics', such as farmers, transport planners and river managers.

Landscapes

Regarding 'landscape scale', it can be argued that there is no single right 'scale', but it is important to retain the term 'landscape' as a link between science and social science. Landscape, it has been noted above, is customary to local people and therefore accepted by the community as an 'umbrella' concept[66] to contain the bigger by size, but smaller by concept, econet.

Econet design, planning and management implies creating future landscapes – an important role for Natural England. However, according to the European Landscape Convention, landscape means 'an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors'. This axiomatically applies to econets. Yet econets will work at various complementary scales, and this cross-scale interaction is pivotal to landscape resilience and to social learning[67].

Econets, as stated above, have to be about more than biodiversity conservation. They are often the 'multifunctional' argument that will lead to their design, implementation and maintenance. Nevertheless, 'networks' as such might rarely be perceived by the public, although the enhanced supply of benefits that results from the improved linkages (ecological networks and stepping stones) between nodes (core areas) may well be perceived and valued.

5.6 Benefits of Research and its Applications

Perceptions of the general public are very variable, whether in socio-economic, geographical or cultural-historical contexts, which makes perceptions difficult to analyse and assess. It is

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[66] Egoz et al, 2011
[67] Selman et al, 2010, Selman 2012

important to measure and count, for instance, perceptions that could be translated into visions, or sketches that can be used to communicate them. This requires a sociological, planning and policy type of research, although most research is now focussing on ecological aspects.

There is possibly too much potential vagueness and imprecision about 'public' and 'perceptions', hence later elements of this study have a special value in defining the what, how and why. So a key benefit that research could offer is to provide a series of clarifications:

- precisely why are the perceptions of the public being measured?
- what aspects are necessary to measure?
- how can they be measured?
- how might the public's perceptions influence policy and design? and
- how can perceptions be integrated with scientific measures?

A further key benefit would be to give econets a fresh and more multifunctional identity. Conventional econet documents are almost exclusively about wildlife networks. It is clear from policy and planning practice, that single-purpose corridors, e.g. species-specific ecological corridors, are difficult to fund, implement and safeguard against development. Networks are much easier to justify and defend where they are multi-purpose, including attributes that are valuable to people, i.e. biodiversity plus amenity, footpaths, cycleways, sustainable drainage, microclimate improvement, heritage and the like. Studies on multi-purpose objectives have been carried out in other continents, e.g. in the USA with the Minnesota Greenway system and with the Florida Statewide Greenway system, which explicitly include footpaths, cycleways, railways and other heritage elements.

6. Towards a Methodological Framework

6.1 Background

The purpose of the third stage of the EcoLaP study was to define the various technical avenues that exist for gathering public perceptions – and appraise these options in the light of such issues as theoretical suitability, practical implementation and applicability/ usability of the research outputs.

In order to inform the development of ideas for this third stage of the EcoLaP study, a series of in-depth interviews was carried out with landscape and ecology professionals – people who are involved in the design, planning and implementation of ecological networks and related investigative methodologies. The purpose of these interviews was to explore whether any barriers exist to incorporating public perceptions into the design of future econets, as well as to examine the most suitable forms of perceptual outputs that might enable these outputs to be both useful to and useable by landscape and ecology professionals. A summary of these interviews is included in this chapter.

This chapter also draws upon the findings from a focus group amongst residents within the Cheshire Life Econet area, held at an earlier stage of the project. The purpose of this focus group was to provide an initial identification of the issues concerning public perceptions of econets and to provide initial advice for future research.

The EcoLaP study has the overall aim of integrating the public's perceptions of landscape change, and the aesthetic and socio-cultural values of landscape in the planning, design and implementation of ecological networks. By the expression 'cultural values' here we refer to the human benefits that arise from the delivery of cultural services by an econet. The chosen list of cultural services was as follows:

1) special places, sense of place, local heritage and attachment (well-known places, often with built features and tourism associations)
2) amenity, leisure and recreation, exercise, sport, access (often about active usage with recognized paths and other infrastructure)
3) opportunity for escape, solitude, tranquillity, calm, spirituality (can be more passive experiences, more intimate environments with lack of intrusion being the key)
4) aesthetics, beauty, variety, opportunities to view (places where the look and the view are important, often open-aspect or high land).

Additionally two more services were defined for the purposes of this study:

5) appreciation of the presence of **wildlife**, improved ecology, biodiversity, perceived naturalness (a general theme across various landscape settings, but often in the context of nature reserves or other places to hear/see wildlife)
6) improved understanding of **eco-system functions**: air quality, carbon capture, flood prevention (an awareness of landscape functions which can be increased over the time of the development of an 'ecological network' through engagement etc).

This chapter sets out a proposed methodological framework for gathering public perceptions and, in doing so, draws upon the findings from the in-depth interviews with landscape and ecology professionals, as well as the Cheshire focus group.

The chapter sets out:

- the purpose and timing of the research **process** within the overall design process for econets
- the **objectives** for public-perception research into econet design
- the **content** of this research
- suitable research **methods** (including both qualitative and quantitative approaches)
- the target **audiences** for the research (who to interview and how they should be recruited)
- **information** requirements, including the concept material necessary to convey the changes associated with ecological networks.

The chapter includes an examination of research methodologies that have been used in similar contexts – not necessarily specifically relating to ecological networks, but employing relevant approaches.

6.2   The Econet Design Process

Introduction

The purpose of this section is to briefly summarise the key findings arising from the in-depth interviews undertaken with landscape and ecology professionals and to discuss the implications of these findings for the selection of suitable methodologies for the pilot stage of the EcoLaP study.

The objective of these interviews was to:

- understand to what extent landscape professionals understand and incorporate cultural services when designing and implementing ecological networks;
- explore whether any barriers exist to incorporating public perceptions in the econet design and implementation process and what those barriers might be;
- examine the feasibility of a range of potential methods for integrating cultural services; and
- examine the most suitable forms of perception outputs that would be useable by professionals.

The interviews were held with professionals drawn from a list of possible contacts supplied by Natural England, and supplemented with others identified during the course of the research. Interviews were held in person, or over the phone.

Econets and the Decision-making Process

The interviews with landscape and ecology professionals revealed that, at best, econet-type projects are only at the very early stages of development – in fact the research team found a

number of instances where, although aware of econets, development was only at the 'thinking' stage. In only one case (Herefordshire County Council) they had developed an ecological network map – with no-one else having got this far in the process. As it stands, the term 'ecological network' was not always understood fully – it is more often referred to as 'connectivity', or 'permeability' of the landscape.

We also found very limited use of a cultural services approach amongst the organisations interviewed.

If there is a common process in the design of an econet then (given these limitations) the early stages are as follows:

i.   the process starts with a mapping of wildlife species. This is referred to in different ways, including '*we have mapped the flora data at 1km*', or '*we have a biodiversity map*'
ii. a next stage appears to be an examination of gaps or unconnected habitats (although many don't know). This can also be called habitat potential mapping.

Since we came across no examples of further development in the process, it is difficult to say what stages come next. However, the professionals could see a role for research results in the planning stage (or before implementation) and perhaps also during the implementation stage.

There are, furthermore, some hints about the breadth of approach in some cases. For example, the South Downs National Park is exploring GIS and ways of modelling ecosystem services, using their own data. Although this will not be completed for a while, '*we are looking at some of the landscape connectivity models*'.   They are also in discussion with Forest Research about an ecosystems mapping approach and are looking at GIS mapping using EcoServe-GIS developed by the Durham Wildlife Trust.

In terms of econet-type actions there has been some piecemeal work to:

•   develop 'easy quick-hit corridors', using for example linear corridors such as canals, rivers, disused railway lines
•   create buffer zones around market towns (examples in both Herefordshire and Sussex) as part of Green Infrastructure Plans
•   increase woodland in a targeted way to bolster patches of habitats using grant aid for private landowners (an example from Wales).

This lack of specific econet planning and development appears to be directly related, in some cases, to the nature of the planning framework, which defines how the subject matter is seen in terms of their day-to-day responsibilities (i.e. giving a view on planning casework). Furthermore, the outputs from any work have to be used within current policy initiatives. So the interviewees linked econets in policy terms to Green Infrastructure Plans, Local Development Frameworks, and plans for climate change vulnerability and mitigation. Econet development seems not to exist in isolation from these contexts.

For example, the South Downs National Park had mapped three species and their habitats (together with potentially connectable habitats) and embedded this into their Local Plan – to act as a first warning for further investigation if development is being considered in the area.

The South Downs NP had wanted to look at how to include cultural services into the Management Plan.

> *Put it in the local distinctiveness chapter of the local development plan.*
> *No-one recognizes at this level that cultural services contribute to health and well-being.*

Another issue that arises concerns the bodies that are responsible for influencing landscape change. From the interviews it would seem that decision-making differs across the country, with both wildlife trusts (and similar conservation bodies) and local authorities in the primary role. This issue of uncertain responsibility is further influenced by the finding that people who hold the levers and mechanisms for influencing landscape change are not always the same as those who carry out the detailed assessments (such as species or habitat mapping).

Decision-making is limited because the concept of ecological networks appears not to be widely accepted in England currently (although possibly more so in Wales and Scotland). Through the interviews, there appeared to be some resistance towards the idea that all species need habitats that are connected, with conflicting views that are influenced by different understandings of how species move (and whether or not small pockets of unconnected habitat are adequate). We also met with some resistance to the necessity of physical corridors (with a view that stepping stones were to be preferred). It would seem that the conceptual map developed by Lawton might be attractive, but perhaps too convenient and difficult to achieve in practice.

There was, however, an understanding that the econet principle is accepted more in Europe. In the UK, legislation was seen to be more fragmented (e.g.; Green Infrastructure Plans and the urban/rural separation). This to the extent that respondents recognised that there is little consensus in England about econets – and even the different NIAs having different ideas about ecological networks.

Underlying all this is a belief that, historically, landscape and wildlife conservation has been separated, rather than integrated, and dealt with in entirely different ways.

> *There is no political will to enhance ecological networks. And the time it takes to do it.*
> *We are run off our feet and we have to deal with all planning applications for the County.*
> *There are hundreds of consultations you have to comment on and there isn't the time*
> *sometimes you can ask for some extra mitigation on site but it is the details really. Once*
> *you are into a planning application the clock is ticking and the pressure is on.*

Current Attitudes towards Cultural Services & the Perspective of People

In the interviews, we came across several examples of 'community engagement'-type activities that had been carried out with local stakeholders, as well as some visitor surveys with the general public. On a small scale there was one NIA that had worked with 'Friends of' groups in the 'design' of a reedbed and in the design of enhanced woodland. The public-sector officials who had carried out this work believed that the best engagement was often done by the voluntary sector (e.g. Wildlife Trusts).

Most interviewees admitted that they struggled with the concept of 'cultural services', especially at the design and strategy stage for landscape change. Other data exist which are

more attractive and easy to work with than the 'people side'. Most interviewees were very map-focussed.

There was some tentative evidence that more use was made of working with the public in more urban or peri-urban sites, whilst in more rural areas (areas with plentiful open countryside) there was a degree of complacency, driven by a belief that: a) there is no problem with access to such places; and b) the area attracts people who are, in any event, sympathetic to nature.

> *There is a willingness amongst the professionals to include the cultural services side but everyone is struggling with it and it is the most difficult to do because on the face of it you are mapping what you already know, it is the SSSIs and the local nature reserves and the semi-natural woodland. It is just presenting the information in a different way. But the cultural element is different in terms of the values and benefits. So it is well known we'll concentrate on the bits we know and the data we have, so we struggle with cultural, so it is always an after-thought.*

For some organisations there was a dissonance between what they believe the public to want and the objectives of an econet. As such, any interaction with the public was in order to persuade them of a concept or to minimise conflict. Any work with landowners was similarly to persuade them to work with the planned landscape change.

> *We need to balance wildlife need and societal gain.*

There was also a suspicion concerning the public's ability to assess concepts such as tranquillity or even the critical issues concerning wildlife. There is a belief that the public want to create neat parkland landscapes ('Richmond Park') or favour grey squirrels – an outcome that the professionals regarded as being unacceptable. It is clear from these interviews that some professionals need to be convinced that ordinary people can look realistically at the issues of ecology.

> *And they would say they appreciate the wildlife but they are actually talking about fluffy grey squirrels or magpies. Maybe not magpies but the fluffy grey squirrels are really cute aren't they? No they're not, they're evil!*

> *They would appreciate an orchard but would they appreciate that there is more mistletoe than the year before?*

The professionals' understanding of cultural services was mainly focused around some simple concepts, such as recreation, footpaths, history, and viewpoints – but without a degree of understanding beyond that. This is mainly because they can use existing data or 'proxies' for these more tangible services without having to ask the public what they think. However, in further discussion (and aided by a showcard that explained cultural services – see the box below) they were able to identify where such services might be delivered – it seemed to de-mystify the topic slightly.

Nevertheless, they continued to struggle with the more intangible cultural services, such as inspiration, calm, identity, or mental wellbeing.

The showcard that explained cultural services identified the following:

1. special places, sense of place, local heritage and attachment
2. amenity, leisure and recreation, exercise, sport, access
3. opportunity for escape, solitude, tranquility, calm, spirituality
4. aesthetics, beauty, variety, opportunities to view
5. appreciation of presence of wildlife, improved ecology, biodiversity, perceived naturalness
6. improved understanding of eco-system functions, air quality, carbon capture, flood prevention.

Whilst being broadly positive about these, there was concern about:

- double-counting
- biodiversity being in only one category
- the likelihood that ecosystem functions would not be understood or appreciated
- the difficulty of quantifying such issues as solitude or tranquillity.

Response to Potential Ideas

During the course of the discussions, the landscape and ecology professionals were asked for their ideas for integrating cultural services into mainstream planning processes. Generally speaking, the suggestions were that integration should take place at two levels:

- at the legislative level (such as agri-environment schemes and planning law)
- at the level of community engagement.

There was some recognition that they could improve cultural service usage at a ground level through such small-scale mechanisms as 'creating tree preservation orders' or through the provision of 'interpretation signs'.

However, a number of barriers and objections were raised towards the application of cultural services measurement in any area of interest. As can be seen, this area is one that will require careful thought later in this study to prepare arguments that will convince professionals of the need for public perceptions research:

i. **double counting**: there was a belief that, in using a collection of separate cultural services (such as inspiration, or local identity) the outcome would be a double-counting within the same locality

ii. **the role of landowners**: capturing cultural services was considered not to be adequately persuasive in encouraging the landowner to change practices – unless, perhaps, a 'cultural service' payment was to be introduced nationally. There appears to be little evidence that anyone has tried to present such evidence to a landowner (this could be an important issue further work down the line in this study)

> *What's the point of asking the wider public if the landowner doesn't have the same view?*

I say it is land ownership is the biggest barrier. People aren't willing to work even the next field over or the see a particular hedge as being their's

iii.   **'wrong' public perceptions**: this objection was typified through the question: "What's the point of asking the wider public if they value things we don't value?" Grey Squirrels and Richmond Park were the examples given. There was a belief that the public would value pest species, which professionals still have to curb regardless of whether they are valued or not

iv.   **loss of control**: it appeared that some professionals thought the activity of mapping cultural services would somehow be binding upon them. This is no doubt an early misperception that would dissipate through time, but they may need to be persuaded that they are still in control of what happens to the map, as well as communication to give guidance on usage

v.   **conflicting views**: another barrier was the idea that people's views vary between audiences and that this was, in some way, an unnecessary challenge for them.   This is perhaps because they were mixing up the need to managing conflicting stakeholders with capturing the values of the wider public

> *We find there is a lot of commonality to people's views but also in terms of the values they put on a landscape varies dramatically between landowners, parish groups, user group will all have a slightly different take on what's important and what value they put on that. Mitigation would be difficult if the farmer is at this end and the parish council is at this end, how would you do that if they are at opposing ends?*
>
> *One person's solitude is another person's isolation.*

vi.   **true beliefs**: there was a seeming inability to accept that the public could make their own value judgements on a place in their locality according to their own belief set. This is not only an issue of heterogeneity of people's views (see earlier) but also seems to relate to the ability of people to identify places with feelings – and the validity of these feelings in a planning context

vii.   **skewed results**: another objection raised concerned the types of people who might respond to research. This was actually seen at both ends of a spectrum: '*you'll only get people who are interested in the landscape answering*' and ' *what's the point of asking people who aren't interested in the landscape?*'

viii.   **usual suspects**: a final concern was that asking the public will only produce results from people who complain. Almost everyone brought up an example where they had cut down trees and people complained. That a survey might have revealed that the majority of people don't think like this, or that it might have warned them in advance so they could manage the situation was not obvious to them.

Evaluation of Options

There was a generally favourable response to the idea of using the public to help with the evaluation of alternative scenarios – this is something already used in 'planning for real' workshops (for example, with stakeholders). However, there was some belief that there are often few alternatives to consider in a landscape, habitat, or wildlife context. Others said there was a case for evaluating options more often. One made a comment that often a local nature

conservation organisation might not consider alternatives, just have a view about the best way forward. Sometimes there aren't many alternatives because it is dependent on what can be negotiated with a landowner.

Monitoring Change

The idea of monitoring changes over time with 'before and after' measures was explored. There was some concern that changes in (for example) wellbeing could be related to anything, such as the economy, and not necessarily landscape related – how could such changes be linked to the landscape changes? One respondent said that they would welcome the idea of attitudinal measures to monitor schemes but only if they could choose where to survey people.

Usefulness of Different Research Outputs

There was a general view that quantitative data was more used, and more useful, than qualitative outputs – even if this meant that some of the less tangible aspects of ecosystem services were being missed. There was a suspicion about using qualitative data in setting policy, although a recognition that is it important at a community engagement stage.

The usefulness of quantitative data is because of the links to numeric natural science data and a sense of comfort from using known numeric relationships ('*If we plant x number of trees we know it improves flood alleviation by y much*'). However, there is a belief that nothing quantitative currently exists for cultural services.

> *Anything that can't be quantified is lost*

There was some interest in the idea of a cultural services map, but the professionals were generally unsure as to how useable it would be. Some thought that the idea of a net gain/net loss in cultural services would be an interesting idea, whilst others just wanted to focus on specific places (hotspots) with multi-purpose/functional benefits. Some thought that they already knew where these places were (e.g. tourist/visitor hotspots).

Mitigation

There was some acceptance of the idea of *mitigation* but also some resistance due to lack of resources:

> *We would never say well the whole of the eastern downs is a no-go area for trees and we never want to see trees there because it is open aspect land. Because the woodland trust would love to do a lot of work there but it is about targeting the interventions and the layering of benefits rather than the undermining of others.*

> *You've not always got the data to be sure about stuff and to develop this approach it is difficult to come up with mitigation that is meaningful. We come at it from the levers for change, agri-environment payments, sustainable communities etc.*

Toolkits

Since one potential output from this study would be a toolkit to help people implement public perceptions research, this idea was tested for usefulness and acceptability. Toolkits were felt to be potentially interesting but could often be too generic. One local authority was interested in a cultural services checklist to send to planners when they are asked to comments from an ecology or biodiversity point of view (for example: is the area valued for inspiration, recreation, a beautiful view, or for an iconic tree?). Others wanted guidance on types of public engagement techniques and how to research the 'non-usual suspects' and people who don't access the countryside.

Is the tool for community planning? What people are struggling to do is turn a lot of conceptual tools into something that relates to policy or to a practical tool that works on the ground.

We give pre application advice as a fee paying service. That can be the most useful stage of the process because we can say can you re-design it to keep that tree or can you put a hedgerow in here.

There has got to be a mechanism for balancing - so there are sites where the nature conservation interest is so high you can't have people there, but there are other sites where you can have both. I don't know how you include that in the toolkit.

I think any toolkit as long as it raises awareness is always going to be useful.

It has got to be reasonably easy and straightforward to use even for non-specialists and planning officers.

On the back of neighbourhood planning you could provide guidance. Promote to parishes for their parish plan. Some parishes are more active than other.

The ecological networks map that we produced has an associated document with it, you could include it in that.

Conclusions

In conclusion, it would appear that – if the organisations that were interviewed during this phase of work are representative of all that are currently involved with the development of econets in England – there are a number of issues for future social research in an econet context. In summary, they are:

- the very slow and early development of English econets
  - so there is little past practice to draw upon when defining best practice
- a low level of experience of designing econets
  - so the role and place for social research inputs is not well defined
- some resistance to the idea of using public perceptions in a decision-making process for landscape development
- a general favouring of quantitative over qualitative outputs
- a low level of awareness and understanding of cultural services.

Additionally, there is a wider issue about the way in which econet development appears not to fit well within existing landscape-policy and decision-making frameworks, which has possible implications for the wider adoption of econets within England. This is an area outside the remit of the present study, but would be a valuable area for further examination.

6.3   Summary of Cheshire Focus Group Findings

The focus group held with residents within the Cheshire Life Econet area (close to the Delamere Forest and mid-Cheshire Sandstone Ridge) revealed a number of initial insights. These should be considered as tentative, but they do indicate a number of areas where public perception research could provide both local understanding and guidance for future research. **Understanding and acceptance of the econet concept**

The broad concepts of an ecological network were introduced using a graphic taken from the Lawson report (as shown earlier in section 3.1 of this report).

With this as introduction, people were broadly able to relate to the concept of an ecological network – and with very little explanation; they were not aware of any econet (local or elsewhere) but had seen some recent signs of landscape 'management'.

They had some understanding of ecosystem service benefits and concepts (such as carbon 'footprint', but not carbon 'sequestration', for example), although they tended to use a very simple terminology.

The term 'biodiversity' was not immediately understood; instead, people referred to 'variety of wildlife', or they responded to specific problems such as lack of habitat for bees and seeing fewer flowers in hedgerows or verges. The term 'ecology' seemed to have more resonance.

People responded to the idea of an econet, that habitats had become 'isolated' and needed connecting up – they understood that nature could be threatened by traffic, roads, urbanisation and farming; the idea that the parts of the landscape were going to be improved was an appealing one. Some econet concepts, such as 'core areas' and 'corridors', were readily understood but the importance of others ('restoration' and 'buffer zones') needed more explanation.

Perceived econet benefits

The main benefit to people from an econet was the idea that it would make the landscape feel more in tune with nature, with more tranquil green spaces – and that it would provide a counter to developments in the road network, industry and urbanisation. The potential benefits to (and subsequent increases in) wildlife and flora were seemingly secondary, although they were valued.

The main **cultural** benefits were seen to include increased opportunities to see bird life, flowers and trees, a more 'joined up' experience of the landscape, improved air quality, protection of the natural environment, more opportunities to find peaceful settings, better recreation opportunities and increased variety in the landscape.

Cultural service hotspots

People were readily able to identify 'hotspots' for the different cultural services. They were able to ring particular areas on a 1:25000 OS map that were seen to be good for wildlife, easy to walk, provided feelings of heritage, had 'lots of nature' and so on.

They showed clear potential to examine specific alternatives for land at a more detailed level and were keen to be engaged in such activity. They do not spontaneously have their own specific aspirations for their landscapes, however.

Methodological implications

It would seem that people have sufficient **understanding** of the basic concepts and aims behind ecological networks to enable them to respond in a research environment.

However, careful use of **terminology** will be important. People do not readily understand all of the concepts behind econets and those they do understand can be couched in very simple ways.

This focus group took place in an area where econet development has been ongoing for many years – although it has been some while ago that the main development took place. Yet **awareness** was non-existent – which suggests that nothing can be taken for granted when it comes to providing background information to future research respondents.

The focus group was comprised of landscape users, but not all of them (particularly the under-30 audience) were interested in the key (wildlife) aspects of an econet, although they could relate to other cultural-service implications, such as outdoor activities. Any future research must use careful **demographic selection** criteria, but this finding also suggests that differing audiences may have varying informational requirements.

In terms of **geography**, people could talk generically at a County-sized scale, and they focused easily on their local area (within 20 miles) in terms of cultural services. However, they could only talk in detail about specific landscape features or changes to these (specific fields, woods, or hills, etc) on a very small scale – either within an area that they knew very well, or within a recognised view as provided through the use of photographs. This implies that when research is about areas outside people's immediate vicinity they will need information to supplement maps – such as photographs, written descriptions or drawings – so that specific landscape and econet features can be discussed adequately.

The ease with which people identified cultural-service hotspots within their home area suggests that people have little difficulty contributing on this subject, whether **mapping** is used or not.

However, people found the discussion of management intervention alternatives more difficult, suggesting great care is necessary to define **information** about econet options in an understandable format.

Finally, there were no indications from this initial focus group research that suggest that any particular **research methodology** would be unsuitable in the future.

6.4   Requirements for Public Perception Research

Introduction

Public perceptions research in an econet context faces a significant series of challenges.   It must be capable of dealing with a considerable variety of econet circumstances that include the variety of econet schemes and their components (a variety of environmental goals, differing scales of landscape extent, many different types of habitat and so on). The approach must also be capable of dealing with many varying types of planned changes (that could include re-wetting, afforestation, restoration of grasslands, etc) – and these may well be both positive and negative in terms of their human impacts.

The scale of the planned changes may also be an issue, not only because econets can be applied at local or regional scales, but also that their impact could vary between minor adjustments to transformative landscape action.

Another key issue is the variety of the different 'publics' concerned. This issue is partly one of the degree of direct involvement that people have (that might range from land owners to occasional users), but also the degree of interaction that they have with the landscapes in question. Thus the approach must be capable of encompassing a wide range of socio-economic and demographic groups, including the full range of ages, ethnicities and income groups.

The likely level of landscape use is also a pertinent issue and the approach must be capable of including active users of the landscape (including ramblers, horse riders, mountain bikers, etc), as well as those whose use is more passive (such as picnickers and people who sit in their cars and admire the view).

The approach also needs to address the differing nature of various publics' awareness, understanding and perceptions of wildlife and wildlife habitats, as well as of ecosystem services. The language that they use in understanding such concepts is also something that must be accommodated.

Any choice of any research methodology is defined by a small number of key considerations. Research into ecological networks is no different. Pertinent methodologies can be seen to be defined by these considerations:

- the objectives of the research
  - the reasons why the research is being undertaken, including any policy drivers
- the content of the research
  - the questions that the research is seeking to answer
- the audiences for the research
  - who to interview or hold discussions with
- the information that is required to inform the research process
  - for example, information about habitats and the econet plans, to help people understand the issues
- other pertinent issues.

Each of these considerations is addressed in detail below.

Outline Research Objectives

The overall purpose of the research into public perceptions is to inform and guide the design of the future econet by understanding the perspective of local people. We have already seen that having a people perspective can improve the design of an ecological network (even if some practitioners do not necessarily see this link as yet). It can also assist in ensuring its continuing success. For example, through an understanding of which areas are used, as well as how people use their local landscapes, we can identify the localities that are important and, thereby, avoid the possibility of developing econet proposals that have a detrimental impact upon people's enjoyment of the landscape.

The study team developed a series of potential research objectives that could be used in the context of econet development. Not all of these objectives might apply in every case and, of course, there may be other objectives that public perceptions research might be aiming to answer in specific econet contexts. The potential research objectives would be, to:

1. understand how people currently use their local landscapes
2. define the specific localities within the landscape that are valued by them
   - and the reasons why these localities are valued
3. define the specific localities within the landscape that currently deliver high levels of cultural services to local people
   - looking separately at the cultural services of inspiration, relaxation, opportunities for leisure activities, etc
4. define the specific localities within the landscape where cultural-service delivery is poor or non-existent
5. examine perceptions of wildlife and the need to implement landscape change to achieve wildlife benefits
6. explore the extent to which the need for habitat improvement and restoration is understood
7. explore the understanding and acceptance of possible ecosystem benefits (and the need to implement landscape change to achieve those benefits)
8. explore the impacts that the future econet design options might have upon local people (and the acceptability of those impacts)
9. identify aspects of the current design that might need to be adjusted in order to accommodate people's needs and ideas
   - including sites, landscape features and access that should be retained, enhanced or where mitigation action might be necessary
10. identify the components of people's attitudes, as a means of evaluating econet options
11. identify potential conflicts (in use, attitudes or reactions, etc) between different groups of the local population

Additionally, there are two further objectives that, whilst not directly associated with the current design of the econet, could provide useful information for the future.

They are:

12. identify people's willingness to be engaged in the future implementation and/or management of the proposed econet (and their ideas as to how this might be achieved locally)
13. provide baseline information that would assist with the monitoring of econet implementation from a public perspective
    - including measures of satisfaction with the landscape and its features and services, as well as measures of well-being, happiness, etc.

The benefits of a methodological framework along these lines is that it is context-neutral – so it could, in theory, be applied in a wide variety of contexts with minimal adjustment to allow for the components of the econet in question (of course, the answers given by people will be context-specific in each case). The next section of this chapter examines these objectives in more detail, as a way of helping define the content of the research.

However, before examining these objectives in more detail, it is perhaps important to state that research into public perceptions is <u>not</u> aiming to satisfy certain requirements that typically make up the backbone of public engagement in a landscape or econet context. These requirements are:

- to engage local stakeholders (local land owners or managers, for example). The research objectives described above are designed to gather the perceptions of the public, and not of stakeholders. Of course, the perceptions of stakeholders concerning the issues might form a useful secondary input, but stakeholders are not a primary audience (see the later discussion on research audiences)
- to inform or engage local people. The research discussed in this paper is not designed to be a form of local public consultation, nor is it designed to satisfy issues of governance, but it is primarily designed to gather people's perceptions, beliefs and attitudes – as well as their use of the landscape (by way of context). Of course, there may be some spin-offs in terms of 'engagement' that might be a natural outcome of the research process, but it is not a specific aim.

Outline Research Content

An examination of the objectives in more detail is designed to help define the content of the research (in whatever methodological form it takes) in more detail.

How people currently use their local landscapes – this could include the places they visit, the frequency of visit, the reasons for visiting these places, the activities they undertake, who they visit with, etc.

The specific localities within the landscape that are important to people – these may be localities at widely different scales according to the context in question (from copses, fields and areas of woodland, to hills, areas of moorland or ranges of hills, etc).

The reasons why these localities are important to them: whatever the reason, which implies a degree of open discussion, or the opportunity to make free-form comments. By 'landscape' we mean here the area covered by the proposed econet or the local parts of it (whatever people can identify with and talk about).

The specific localities within the landscape that currently deliver high levels of cultural services to local people – the purpose here is to go deeper than mere 'importance' by looking separately at a range of cultural services, such as inspiration, relaxation, opportunities for leisure activities, etc. The aim of this section is to identify the 'hotspots' of cultural service delivery and to understand the reasons why certain locations in the current landscape are seen to be particularly good at providing cultural benefits, so that they can be retained and the principles built upon in the econet plan.

The specific localities within the landscape where cultural-service delivery is poor or non-existent (again taking a range of cultural services) – the purpose here is to identify where landscapes are of poor quality from a people perspective with a view to improvement (or, at least, to help gain an understanding of the issues).

Examine perceptions of wildlife and the need to implement landscape change to achieve wildlife benefits – this is another question of providing context, with the aim of providing an understanding of, for example, the limits of people's understanding of wildlife issues, their misperceptions, etc – as well as understanding the importance they place upon wildlife and wildlife preservation or enhancement.

The extent of people's understanding of the need for habitat improvement and restoration – to what extent do they understand the pressures on habitats and species, the impacts on wildlife populations and what this might mean for them personally and for society in the future? This section is to include the level of understanding of the need to implement landscape change to achieve benefits for wildlife – and what this might mean for local people.

The extent of people's understanding and acceptance of possible ecosystem service benefits. Previous research has shown the need for research into ecosystem services (water and air quality, flood alleviation, carbon sequestration, etc) to use very simple concepts and terminology, so this section cannot be too detailed. It should probably focus more on the need to implement landscape changes to achieve those benefits – and, again, what this might mean for local people.

The future econet design options and the impacts these might have on local people. The information requirements here are described later, but this section should set out the options and allow people to give their feedback in terms of how they might be affected, personally and for other people. The acceptability of the impacts should be discussed in the light of wildlife and ecosystem benefits. This section might also usefully include a discussion about possible areas of conflict between human and wildlife needs and how these conflicts might be resolved. Also, possible areas of conflict between different population groups.

Aspects of the current design that might need to be adjusted in order to accommodate people's needs and ideas. This clearly depends on the reactions of local people to the design (both conceptually and in detail). This section should allow people to identify ways of improving the design from their perspective, including sites, or landscape features, that should be retained, enhanced or where mitigation action might be necessary (boardwalk access in cases of re-wetting, for example, or the provision of informational/educational boards to help people understand the rationale for change).

People's willingness to be engaged in the future implementation and/or management of the proposed econet. This aspect is not a primary requirement, nor is it intended that people should be recruited for future voluntary work, but their ideas as to how local people might be encouraged to take part could form part of the research.

Baseline information that would assist with the monitoring of future econet implementation – if the econet is to be a success from a public perspective then there ought to be measurable outputs that would indicate this success. The purpose here would be to provide a baseline, against which changes in people's perceptions and their usage of the landscape could be monitored. This section could include questions to measure visit-rates, measures of satisfaction with their local landscape (and its features and services) as well as measures of well-being, happiness, etc.

Research Audiences

The purpose of this section of the chapter is to describe the audiences that the research should address – the people whose opinions, beliefs, attitudes, actions and reactions the research is aiming to uncover.

For very understandable reasons, mostly relating to available budgets, many landscape-change projects that include an element of primary social research tend to focus on a limited range of people. Typically, research is aimed at local stakeholders (land owners and managers, parish councils, interested parties, etc); but occasionally it also includes members of the local population. However, on those occasions where a local-population perspective is sought, the research techniques employed (typically a public meeting) tend to deliver only a small (and probably often unrepresentative) group of people – those sufficiently interested in the subject and with the time to attend.

Local landscapes are, however, enjoyed by many different types of people – and a far wider group of people than those with the time and inclination to attend the typical public meeting. People who use local landscapes include people of all ages, who undertake a wide range of different activities in their landscapes (and who have different needs from these landscapes). Their use of the landscape includes activities that range from strolling and dog-walking, to paragliding, cycling and horse riding – or just sitting in a car looking at the view. These activities are undertaken alone, in pairs or larger groups. They also include family activities with children, such as picnicking, den-making or playing hide and seek.

If it is to reflect this variety, research should be conducted with a representative cross-section of people who enjoy their local landscapes. We would suggest that the primary audience for the research should be **users** – members of the public who live in or close to the selected econet areas and who use the landscape in question. There are also other users whose views might also be sought, including visitors and tourists. The definition of users might also possibly include those people who work within the landscape or who pass by en route to/from somewhere else – i.e. who engage with the landscape in other ways.

We do not see the case for including **non-users** – those people who have no connection with the landscape in question. We do not consider that research approaches that derive existence

or bequest values have a place in an approach that is aimed at deriving public perceptions in a landscape-scale ecological network context.

If a representative cross-section of people who enjoy their local landscapes is to be researched, then members of the public should be identified using random-selection procedures – or through sufficiently targeted means that ensure that the complexity of local population demographics is adequately reflected. This implies a recruitment design that addresses local age, gender, social class etc distributions. It also implies that there should be adequate representation from hard-to-reach groups (the elderly, ethnic minorities and so on). However, the primary requirement is to research a cross-section of **users**, so adherence to a full socio-economic demographic locally may be misleading.

Many other studies have sought to overcome this problem by focussing effort on visitors – using research techniques that aim to intercept visitors during the course of their visit (at car parks or other places where people congregate in sufficient numbers to make the fieldwork effort worthwhile). This approach may be suitable in some econet contexts, although there remains the problem of ensuring that low-frequency users are adequately represented. Furthermore, not all econet public-perception research might be suitable for such an approach (including focus-group workshops or other interactive forms of research, for example).

The discussion on the previous page also suggests that, whilst potentially a minor or secondary audience, the research should not focus entirely upon **stakeholders** – people who come from any organization or group (or are individuals) affected by, with an interest in, or influence over, a decision-making issue. This itself implies that a screening process might be required to identify and limit land owners and managers, employees of partnership bodies, and scientific or policy experts. In particular, it is important to ensure that such people are not included in any group research context as their understanding and views might unduly influence the nature of the discussion.

The aim of any public perceptions research into landscape issues (and this goes beyond econets alone) must be to ensure that the full range of perceptions, activities and opinions are included – and this implies the involvement of a wide range of people types. Clearly there is an issue of priorities, often budget-driven, but it would be unwise to depend upon the views from a subset of the population and assume that their views are sufficiently representative of all people – in all their complexity.

This has clear implications for the research method(s) that might be suitable – an issue that is addressed later in this report.

Information Requirements

The purpose of information in the research process is to inform people to a sufficient level that they are able to understand and appraise the issues relating to econets in general – and the design of the particular econet in question (but its purpose is not to persuade people of the merits of the econet or to influence their reactions or suggestions). So the information presented to people must be accurate, neutral, concise, and make use of terminology that is readily understood by people of all types. People must have sufficient time to absorb the information presented and it should be presented in forms that recognise people's different levels of understanding and use – not everyone can use maps, for example.

There are several issues concerning the topic of information. They include:

- informational content
- forms of presentation
- order of presentation.

In terms of **content**, we would suggest that the following could apply, depending on the circumstances in each case:

- a graphic (and written) description explaining the principles of an econet
- local habitat survey maps and descriptions
- local biodiversity maps and descriptions
- photographs of key local sites
- photographs of target wildlife species
- a written statement of econet objectives
- maps, plans or videos of the proposed econet area and its features
- maps, plans, sketches or videos of proposed landscape-change options

We would suggest that most of these would be essential, as would some form of map that shows the econet area in question (even if only adapted from a local 1:25,000 OS map), together with the locations of future change.

For the **presentation** of this material, although the above discussion suggests that maps are essential, it is important not to assume that people are map-conversant, so other forms of portraying/conveying information are also required.

The **order** of presenting the econet information is driven largely by the structure of the discussion or of the topics contained in the interview questionnaire – with general principles organised first, followed by increasingly more detail and complexity. This implies that any appraisal of the options should be located toward the end of the interview/discussion, when the process of education has been sufficiently developed and people have had time to absorb and understand the concepts and proposals.

Other Issues

There are a small number of other pertinent issues that might influence the methodology to be chosen in each case:

Research environment. The first question here concerns the locations for the research. The chosen locations need to be *local*, to ensure that the views of local communities are adequately gathered. Typical venues could include a room in a local pub, community centre, or village hall, in people's homes, or at local community events. The research may also need to be on-site if the 'visitor' audience is particularly important – in which case, suitable locations might include car parks, visitor centres, cafes, or other places where people congregate during their 'landscape trip'.

Number of localities. The findings from the initial focus-group research held in the Cheshire Life Econet area (described earlier in this report) suggests that there are some spatial limits to people's capabilities in discussing landscape.   Whilst general discussion can be held about landscapes further afield, people's ability to discuss details seems restricted to nearby localities (places that are either well-known or 'within view'). This could imply that research localities might need to be spread across the econet, in those cases where the econet extends over a large area – and a larger number of locations may be necessary to ensure that all affected communities are covered.

Requirements for researchers.   The above discussion about information suggests that research respondents might need various ideas explained to them. So, if the research is to be robust, we would suggest that any fieldworker (interviewer or moderator) involved in the research should have at least a basic understanding of econet principles, as well as a good understanding of the specific plans for the local econet in question (it goes without saying that they should also have capabilities in, or training in, the respective research techniques).

6.5   Potential Methods for Gathering Public Perceptions

Introduction

Earlier sections of this chapter have set out the topics for exploring econet design issues with local communities, through primary research. The purpose of this section is to describe possible techniques that might be employed for this research, together with the advantages and disadvantages of each.

It is not the purpose of this section to argue the theoretical basis for any given research approach, as other publications have already amply fulfilled this requirement[68].

Unless the methodologies also apply to research *per se*, this section does not address any techniques that fall within the definition of public consultation, or community planning, where the primary purpose of the exercise is to inform people, rather than to elicit facts and opinions from them.

Available Methods

There is a wealth of research techniques that could, theoretically, be available to examine the issues concerning econets from a public perceptions perspective. They include qualitative methods – discursive techniques that include focus groups and workshops – and quantitative ones (larger-scale face-to-face interview surveys, for example). However, given the discussions about the requirements for a chosen methodology that have been described in the previous section of this paper, not all will be suitable.

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[68] see, for example, "A Critical Review of Research in Landscape and Woodland Perceptions, Aesthetics, Affordances And Experience"; Thompson, C. and Travlou, P. OPENspace, for Forestry Commission, 2009

There are a small number of key limitations that probably rule out certain commonly-used research techniques. These limitations are:

- the requirement for the research to be carried out **locally**
  - which rules out any technique that cannot target the research effort geographically (such as a nationwide omnibus survey, or nationwide panel survey)
- the need to present extensive **information** about the econet – and the wildlife and habitat issues the econet is aiming to address
  - which will work against any technique (such as on-street interviewing or the use of telephone surveys) that doesn't permit the respondent both the opportunity and time to examine and consider the concept material relating to the econet in question
- the proposal that people identify, **on a map**, the locations where they derive cultural benefits
  - which, as the technology presently stands, appears to rule out any commercially-available online survey techniques and probably also rules out the use of any computerised interviewing method (although suitably-designed bespoke software could potentially overcome this problem).

The essential requirement to understand, rather than to inform, probably also suggests the inappropriateness of the various techniques that fall within the definition of 'deliberative research methods' (i.e. those where there is an interplay between policy makers and the public within a discussion environment, in order to develop or refine public policy).

Suitable Methodologies

The few restrictions described above would nevertheless not rule out a wide number of potential methodologies – including 'classic' research techniques, as well as emerging ways of gathering opinion such as smartphone apps and social media. We cannot describe all suitable methods here, but the following are suggested as being the most likely candidates.

In general, **qualitative techniques** are designed for exploration of a subject that is little understood or where an in-depth understanding is required. The techniques aim to uncover, through discussion, attitudes and beliefs in an open-ended, loosely-structured, manner. They are normally conducted in a set-aside environment (someone's home, for example, or a 'public' venue) and use an interviewer or moderator to guide the discussion. As such, the various techniques that are defined as being 'qualitative' meet most (but not all) of the requirements for econet research. The exceptions are those that aim to provide a baseline for monitoring the future success of the econet – which require a quantitative approach.
The list of suitable qualitative techniques would include:

- focus groups
- workshops
- one-to-one in-depth interviews
- multi-respondent in-depth interviews (for example with friends, or members of the same family).

There are a number of other qualitative research techniques that might also be suitable, although they would not necessarily address all the objectives. These might include accompanied walks (where the researcher accompanies the respondent on a walk through the landscape in question) and creative approaches (which tap into local creative writing, art or photography to develop an anthology, based on the project area[69]).

There are some limitations to qualitative techniques, as far as econet research is concerned. The main restriction is one of numbers – by its very nature, qualitative research is carried out with relative few members of the public, because it seeks to address depth rather than breadth. Not all client bodies are set up to make use of qualitative 'data', so this may be a pertinent issue in some cases where a numerical understanding is required.

Quantitative techniques are designed to provide a *measure* of attitudes and beliefs. They typically use larger-scale survey techniques that use pre-coded, closed forms of questioning, although some limited use of open-ended questioning is possible (typically for simple forms of analysis). The surveys can be carried out face-to-face, or use self-completion methods (including postal, telephone or online surveys).

6.6   Experiences from Other Cultural Services Research

Introduction

In the first project paper prepared in the course of this study, we noted the paucity of examples of ecological network studies that have incorporated public perceptions. Since this study aims to take a cultural services (or cultural values) perspective to the use of public perceptions for the benefit of econet design, the study team has extended the search to include study examples where a cultural-service approach has been taken, even if not in an econet context.

The aim here, as before, has been to highlight current examples of best practice, as a means of identifying the most suitable research methodologies for the EcoLaP study. However, despite the current level of interest in cultural services within an ecosystem approach to landscape, there remain few examples that we can draw on. Nevertheless, we have been able to identify a small handful of relevant studies, which will be discussed in this section.

Climate Change Conversations

The first example can be found in a report prepared by Land Use Consultants for Scottish Natural Heritage in 2011[70]. The purpose of the report was to identify ways of exploring the effects of climate change on landscape and quality of life at a local level, allowing communities make informed choices about how they want these changes managed.

As part of the study a 'community dialogue exercise' was carried out with two pilot communities in Scotland: Nairn in Highland and the Machairs in Dumfries and Galloway. The project involved:

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[69] And can have the spin-off benefit of gaining publicity for the proposals, through exposure in the local media
[70] Land Use Consultants (2011). Climate change conversations. Scottish Natural Heritage Commissioned Report No.492.

- developing the concept of ecosystem services associated with landscape character and landscape qualities;
- developing a method which can more effectively measure and capture the effects of landscape change on ecosystem services as a means of judging the impacts on quality of life;
- developing a process which can be used with communities and other stakeholders to identify 'landscape' ecosystem services and measure the effects of landscape change; and
- trialling this approach with two communities with specific reference to climate related landscape change, using this to gauge people's perceptions of these changes, and the community and policy actions that they consider should be taken forward to address them.

To these ends, the 12 public focus groups, four extended 'creativity sessions' and 16 'post experience in-depth interviews' were used as a means to discuss what people valued about their place, the ecosystem services their area delivers and how this could be affected by climate change. The discussions also started to identify people's preferred responses to these impacts.

The study used an adapted set of 'cultural ecosystem services' that included five provisioning or regulating services, namely: food and timber, fresh water, fuel, water regulation and climate regulation – all in the context of the local Landscape Character Area and its features.

In each focus group, people identified where, in their local landscape, there were 'places, features or qualities' that were special to them. These were identified by them on maps of the local Character Area, using coloured dots – one for each of four cultural services groups. Later, participants were asked to consider each of these places, features and qualities in terms of the way that they contribute to their quality of life. Climate change impacts were examined in later exercises.

The researchers report that the process generally worked well:

The framework of ecosystem services, presented in terms of the benefits we get from the landscape, appeared to work well, with people quickly understanding and applying the approach. Participants worked through the task well, were quick to think in terms of 'benefits' derived from the landscape, and were able to work through the sheets that were provided. Some of the more technical services were highlighted less frequently.

One small problem that did arise was that more time was needed to complete the mapping tasks, which may have some implications for any future work that uses a similar approach. The researchers also had some concerns that the groups were attended only by people with an interest in the topic – and were so not fully representative of the local population.

North Devon Nature Improvement Area

Although not yet published, a very recent study has been reported at a recent seminar on cultural ecosystem services at the University of Exeter. This study, undertaken by the University, was carried out for the North Devon Nature Improvement Partnership, led by the

Devon Wildlife Trust[71], mainly to advocate mapping as a context for qualitative community oriented decision making.

For this study, as series of 'community engagement workshops' were held and an extensive survey instrument was delivered to 1,500 households in the area. Local people were asked to identify (on maps, using green dots) locations that were special to them. They were also asked to identify (again on maps, using different coloured – red – dots) places where the landscape was of poor quality. The survey work was also integrated with creative mapping techniques using local arts organisations.

This work clearly has parallels with the approach used by Land Use Consultants – in the sense that it examined two broad aspects of cultural-service provision, positive and negative. However, the researchers have noted that there was a wide interpretation of the 'negative' cultural services, to the extent that people identified a wide range of problematic locations, not all of which were focussed on the requested task. Clearly, the terminology used in such exercises is important in guiding people in the right direction.

Experiencing Landscapes

Whereas the two studies discussed above used a simple form of mapping to identify local provision of cultural services, two other studies (carried out for Natural England by The Research Box and Land Use Consultants in 2010/11)[72] took a different – entirely qualitative – research approach.

This research used a series of extended focus groups and in-depth interviews (of various types) to identify how people perceive that cultural services are delivered by **features** within the landscape. These features included geophysical features (hills, rocks and crags, for example), landscape features (such as rivers and lakes, field systems, etc), built structures (dry-stone walls, ruined buildings) and so on. The researchers were able to identify the extent[73] to which eight cultural services were delivered by the range of features, taking example National Character Areas as the frame of reference.

This research, the first of its kind, showed that the qualitative research environment is well-suited to the task of understanding people's perceptions of landscape and of cultural services at a very fine level of detail.

North Pennines Ecosystem Services Pilot

A later (2012) study, by The Research Box for Natural England and the Pennine Prospects partnership[74], applied the same techniques to examine the public's reactions to landscape change in the context of ecosystem service enhancements (such as flood alleviation and water quality).

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[71] This case study is also being used as part of the refinement work package on cultural services in the National Ecosystem Assessment follow-on work
[72] Research Box et al 2009, 2011
[73] Using a four-point scale from 'nil' to 'high'
[74] Research Box 2013, Assessing and evaluating the cultural services of the South Pennines ecosystem services pilot, Natural England Commissioned Report No. NECR128

In this study, respondents (residents local to the areas in question) were asked to consider the changes that might result from the proposed management actions – changes that included increased woodland and scrub, as well as peat restoration (which itself implied wetter hilltops, leading to reduced public access). The potential changes were conveyed through the use of habitat maps, mock-up photographs and written descriptions. As with the Experiencing Landscapes studies, a modified set of cultural services was used to identify the types of impacts that the potential changes would have upon local people.

The lessons from this study are similar to those pertaining to Experiencing Landscapes, in terms of the accessibility of cultural-services topics to people. However, there were additional findings that have relevance to the examination of regulating services – notably the difficulty that people had in envisaging the problems other than in very simplistic terms and with the use of a simplified vocabulary. Whist it is possible for people to consider these topics, they cannot be addressed in any depth.

Conclusions

The study examples identified above provide some useful indications about the choice of suitable techniques for the development of the EcoLaP study. They include:

- that qualitative techniques of various types have a good precedent when examining landscape change and the implications that might arise. They also have been well-used in the examination of cultural services
- that there is little evidence, if any, for the use of quantitative research methods
- that people can relate to maps and identify on them the places that are special, that deliver specific cultural services and, even, that are poor quality landscapes – but this mapping has been undertaken using manual systems, not IT-based ones
- that the examination of non-cultural ecosystem services might not be easily achieved in a research environment.

7. Pilot Methodology

7.1 Introduction

The purpose of this chapter is to set out, in some detail, the methodologies that were used during the course of the pilot social research, undertaken as part of the EcoLaP study.

The chapter contains:

- an overview of the techniques used and the rationale for their selection
- a description of the background context of the chosen econet (part of the Bedfordshire Greensand Ridge – NCA90)
- a full description of each of the pilot methods
  - community event
  - focus group
  - interviewer-administered survey
  - self-completion survey.

The results obtained during the course of the pilot research follow in the next chapter.

7.2 Overview & Rationale

Four research methods were tested during the course of the study pilot. The four methodologies were:

- a workshop (or extended focus group)
- research held during a community event
- a face-to-face interview survey
- a self-completion interview survey.

The primary approach of the pilot was a qualitative method – using a **focus group workshop**. This was in recognition of the fact that many of the issues concerning econets and cultural values imply in-depth questioning and the ability to probe and fully understand people's reactions.

In addition to the more rigorous focus-group workshop approach, the pilot also tested a more informal qualitative context, specifically a local **community event** where people gathered naturally and could thus be recruited for a research task. The community event was designed to explore the extent to which in-depth qualitative information could be gathered during the course of an event that was not held in a dedicated research environment. It too addressed objectives 1-11 of the list set out earlier.

The study team was concerned, however, to test a more semi-qualitative approach that included some form of open-ended questioning within an otherwise quantitative survey – this was to understand the extent to which (cheaper and often easier) survey-based approaches might be suitable. Two forms of survey were tested in the pilot:

- an in-home **face-to-face interview survey** was carried out within the immediate vicinity of Rushmere Country Park and was designed to explore the extent to which quantitative research techniques can be adapted to address the full range of research objectives.

- in addition, a **self-completion interview survey** was also carried out to explore the extent to which people can adequately answer the survey questions without the help of someone on hand to explain the concepts – thus relying solely on written explanations and maps. This survey also addressed the full range of research objectives.

All the pilot research was carried out over the course of six days between Sunday 18th August and Friday 23rd August 2013.
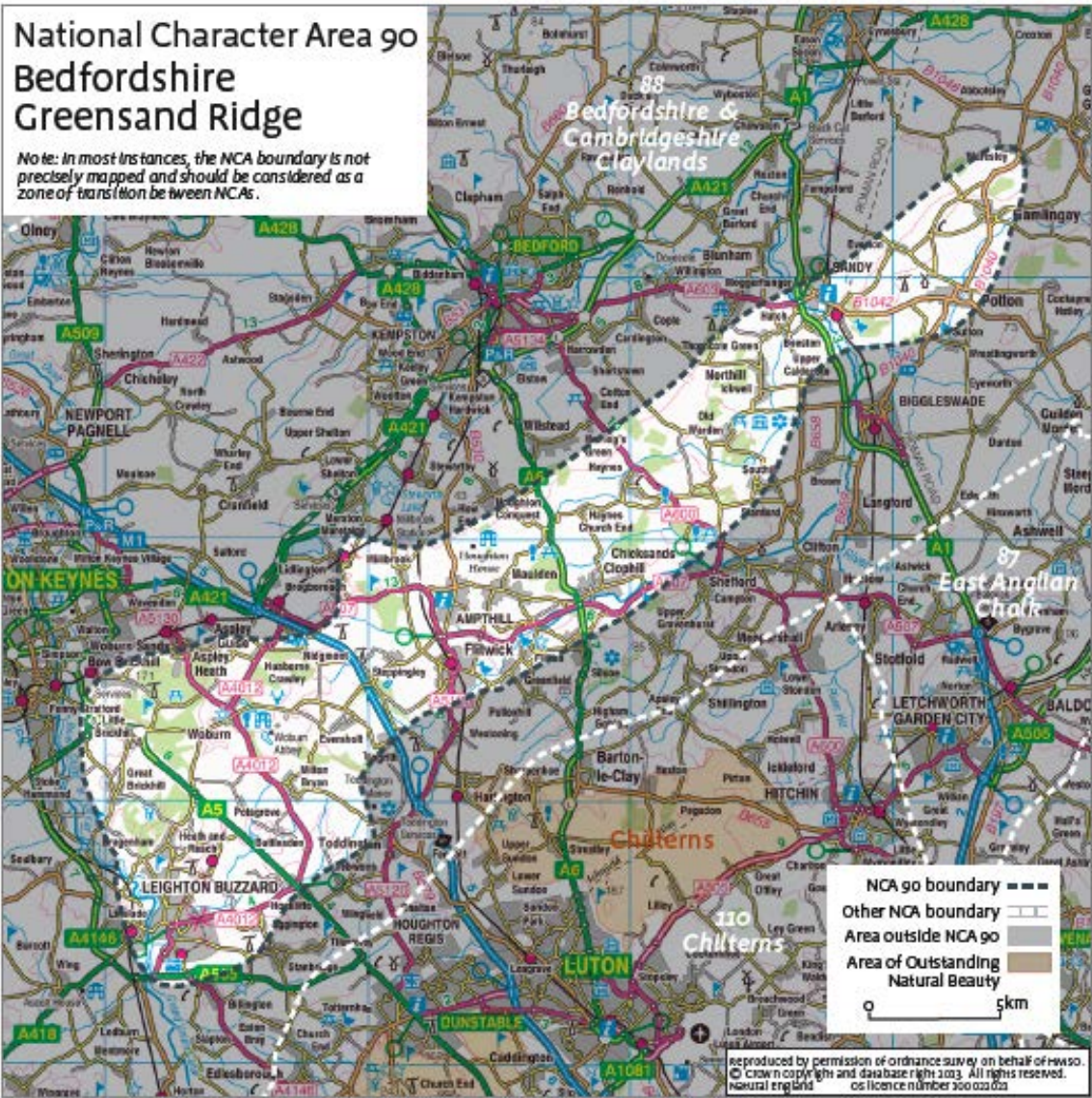
The locations of the pilot research are described in the sections that set out each method in detail, which follow later in this chapter.

7.3   Background Context

Bedfordshire Greensand Ridge

The Bedfordshire Greensand Ridge (GSR) is a distinctive local feature that rises markedly from its surrounding clay vales through Bedfordshire, Buckinghamshire and Cambridgeshire. It is an area of gently rolling hills and small valleys, heavily wooded in parts, and is recognised by Natural England as one of the Natural Character Areas (NCA90).

The Ridge is one of the few areas in eastern England where heathland and associated acid grasslands are found. For hundreds of years birch, gorse, broom and heather were gathered from the heaths for use as bedding, thatching and fuel, and villagers' cattle and sheep grazed on the heaths. Post-war, parts of the Ridge have been planted with conifers, but there are still areas of important habitats remaining – such as heathland, acid grassland and ancient woodland, where you can find things as diverse as adder, green tiger beetle, small-leaved lime and lily-of-the-valley. However, habitats have been lost and are increasingly fragmented, with the heathland restricted now to four main clusters.

National Character Area 90
Bedfordshire Greensand Ridge

Note: In most instances, the NCA boundary is not precisely mapped and should be considered as a zone of transition between NCAs.

In September 2011 the Bedfordshire & Luton Green Infrastructure Consortium supported the proposal to put the GSR forward as one of the 12 potential 'Nature Improvement Area' pilots to Defra. While the principle gained some momentum it was agreed that proposals were not developed enough and did not have wide enough buy-in to provide a reasonable chance of success against stiff competition from across the country. Later, in November 2012, Central Bedfordshire Council endorsed the local designation of the Greensand Ridge Nature Improvement Area, and included text describing it (as well as policy backing) in its draft Development Strategy. The three lead organisations are working with a wide range of partners to develop the vision and strategy for the GSR NIA – although no actual work has taken place on the ground under the NIA banner so far.

One issue for the NIA is the development of a strategy for balancing recreation and access with ecological sensitivities. Unfortunately many of the GSR's most important sites ecologically are those that have high visitor numbers, and it is hoped to create an agreed Framework guiding the activities of those involved in access and recreation to ensure that undue pressure is not placed on fragile sites, that recreational pressure is directed away from

the most affected/likely to be affected sites and areas and that opportunities are created and promoted where impact is lower but people still experience the environment of the GSR.

Heath & Reach Linkage Project

One locality where the issues of access and its impact upon habitats and species can be found is in Rushmere Country Park. Rushmere Country Park is a 400-acre country park at the northern edge of Leighton Buzzard, which has lakes, ancient woodlands, conifer plantations, meadows and heath.

Rushmere Park was a privately owned forestry plantation until purchased by Central Bedfordshire Council and the Greensand Trust in 2009. It lies adjacent to the former Stockgrove Country Park and Oak Wood, owned by Central Bedfordshire Council and the Trust respectively. All three sites have been amalgamated and are managed as one site, which opened fully to the public in 2011.

Potential Habitat Changes & Wildlife Impacts

The Rushmere Country Park estate has a fascinating variety of habitats, including areas of SSSI, including Bakers Wood (designated due to its ancient woodland interest) and Shire Oak Heath (designated due to its heathland, lost to conifer plantations but now being restored). Large swathes are also designated as a County Wildlife Site. Wildlife is abundant and includes mandarin ducks, woodpeckers, warblers, butterflies, common lizards and herons.
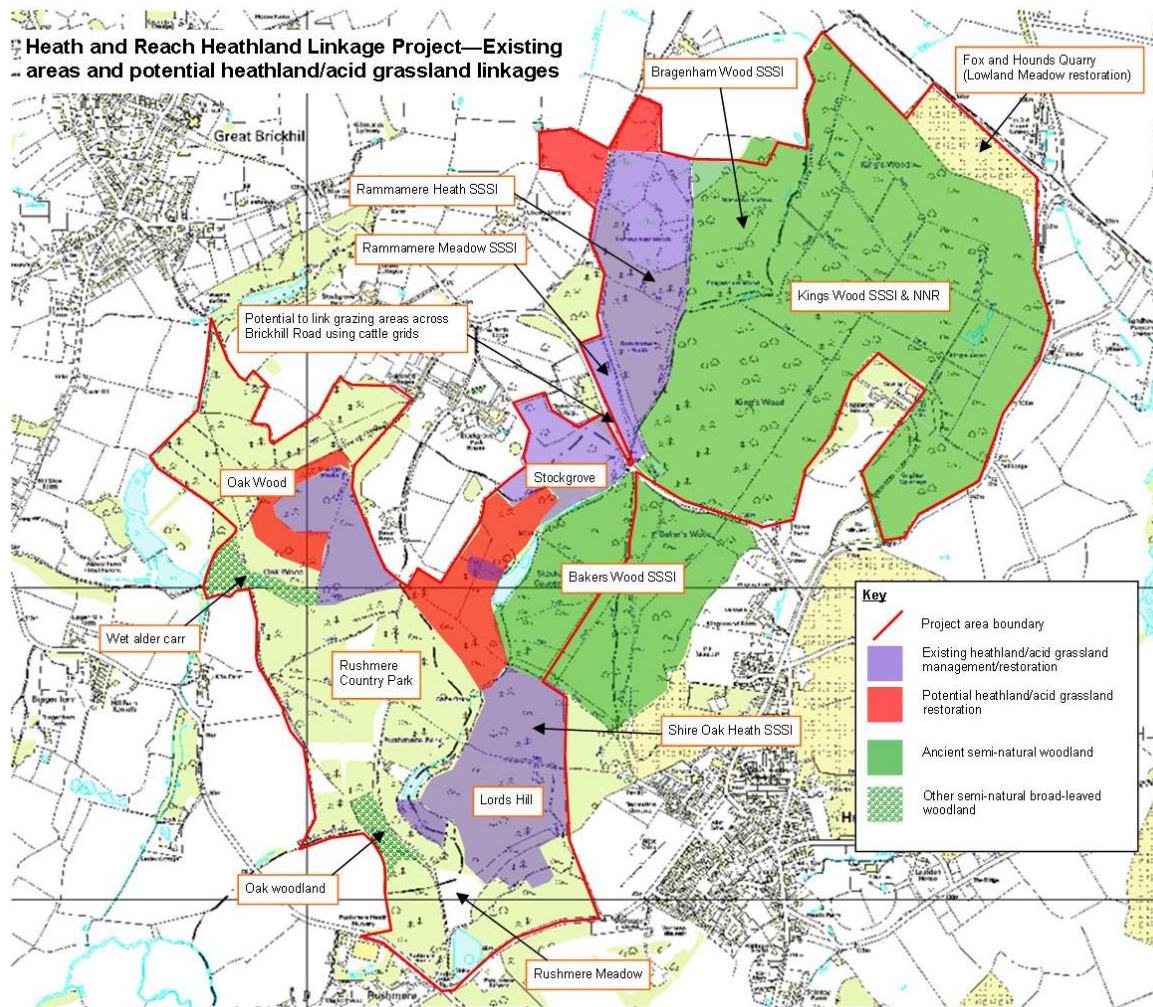
The Heath & Reach Linkage Project was proposed as a location for the EcoLaP pilot research by the Greensand Trust. Working alongside organisations including the RSPB and the Wildlife Trust, the Trust has plans to enhance and restore the wildlife habitats along the Greensand Ridge, to create an ecological network that will allow wildlife (and nature generally) to flourish and expand.

One particular local proposal is to link up the various areas of current heathland and acid grassland within and adjacent to Rushmere Country Park (heathland is in decline across England, threatened by housing developments, forestry plantations and agriculture). The map below shows (in red) the outline of the Heath & Reach Linkage Project, the current habitat status within the two Parks and the proposed areas (shaded in orange) where heathland and acid grassland would be restored[75].

Overall, under the proposal:

- more of the conifers on the Oak Wood/Stockgrove boundary within Rushmere Country Park would be removed
- areas within Oak Wood could also be expanded by further thinning and felling
- low intensity grazing could possibly be introduced
- this grazing could also be linked with the areas of heathland and acid grassland at Rammamere Heath to the north of Brickhill Road, by placing cattle grids at either end of the road.

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[75] Although full landowner engagement and consent in areas outside the Trust's control has yet to be obtained

Heath and Reach Heathland Linkage Project—Existing areas and potential heathland/acid grassland linkages

Great Brickhill

Bragenham Wood SSSI

Fox and Hounds Quarry (Lowland Meadow restoration)

Rammamere Heath SSSI

Rammamere Meadow SSSI

Potential to link grazing areas across Brickhill Road using cattle grids

Kings Wood SSSI & NNR

Oak Wood

Stockgrove

Bakers Wood SSSI

Wet alder carr

Rushmere Country Park

Shire Oak Heath SSSI

Lords Hill

Oak woodland

Rushmere Meadow

Key

Project area boundary

Existing heathland/acid grassland management/restoration

Potential heathland/acid grassland restoration

Ancient semi-natural woodland

Other semi-natural broad-leaved woodland

The introduction of low intensity grazing in the parkland would help to control the growth of scrub, bracken and coarser grasses, and encourage the spread of heather and finer herbs, creating a mosaic of wildlife habitats something akin to what is seen in the New Forest.

It is hoped that the more open conditions will allow heathland plants such as heather, gorse, and bilberry to re-establish, which in turn will provide food and cover for a wide range of species, including insects such as green tiger beetles and solitary bees, and reptiles such as adder and common lizard. It could also encourage specialist heathland birds like woodlark, nightjar and tree pipit to return and breed in the area.

Choice of Pilot Econet – Rationale

Though part of a wider nature improvement area across a whole ridge, the Heath & Reach Linkage Project is at quite a small scale for an econet. It was, however, seen to be quite apposite for the pilot research, for a number of reasons:

- the proposed changes of the linkage project illustrate a number of the possible features of an econet (creation of a corridor, buffer zones)
- it is a location that is well-used by the public and for a variety of reasons (such as walking and dog-walking, picnics, cycling, birdwatching, etc)

- the location is relatively close to centres of population where research could take place
- it is a well-defined area, with varied habitats
- the proposed habitat changes would probably have visual and experiential impacts on people
- similar habitat changes have been instituted recently, providing people with examples of change and associated impacts (with some controversy, too)
- not all of the changes would necessarily be positive for people – there are possible issues of access, destruction of woodland and the creation of a potentially visually boring landscape (heathland)
- the proposed changes have distinct goals from a wildlife perspective, not all of which would necessarily be positive (increased numbers of adders, for example).

7.4   Description of Pilot Methods

Focus Group Workshop

The focus group workshop was held in the evening of Tuesday 20th August in Leighton Buzzard. The hotel was close to a train station and the group lasted an hour and a half. The discussion was led by a professional and impartial moderator. Participants were recruited using professional local recruiters who used a combination of on-street and database methods to find people following pre-agreed quotas and using a recruitment questionnaire. They were given a cash incentive of £30 to attend.

Each person was required to live in, work in, use or otherwise have an affinity with the area shown (the boundary map of the NCA). A mix of town and rural dwellers were recruited and anyone who worked in 'landscape professions', in politics or landscape/ecology lobby groups were excluded. There was a mix of ages, with the group including those with children still at home (and not) and a spread of socio-economic groupings.

The content of the group discussion followed a topic guide. There was an early discussion about how they benefit from the landscape and a brief examination of cultural services, looking at the definitions and thinking a little about where they gain these experiences locally.

For the first activity, people were split into pairs and asked to colour-in their given map with highlighters that corresponded to the key on the cultural services table (see overleaf) – for example, marking with yellow for historical places, orange for active recreation, blue for tranquillity. Each respondent pair was given a different scale and style of map to examine what worked best. They were allowed to do this mainly on their own without too much explanation but the moderator was able to hear their thinking.

   NB. As this was a pilot, only one focus group was conducted. It is normally advisable to hold several groups to allow for greater coverage of an area, more detailed exploration of the issues, more corroboration of the findings and the ability to deal with different demographics separately (a young-person group, family group, older group etc).

Cultural Service Group	Cultural Service Measure for this landscape
1.Sense of Local Identity, Local Heritage/History and Education Colour code: yellow	a. local heritage sites within the landscape are well-maintained and preserved b. the landscape is strongly linked to our local identity c. there are outdoor places here which provide an educational experience
2. Amenity, leisure and recreation, exercise, sport, access Colour code: orange	a. it is possible to use the landscape for sport or exercise, such as walking, running, walking the dog b. this landscape is good for cycling c. this landscape is good for horse riding d. there are opportunities for swimming or water-based sports within the landscape e. the landscape gives us opportunities for leisure activities f. the landscape contributes to my level of physical health
3. Opportunity for escape, solitude, tranquillity, calm Colour code: blue	a. I can escape green space here b. there are places to be quiet and tranquil c. there are calming places within the landscape d. there is minimal noise from traffic or built-up areas e. there are places to 'get away from it all' f. the landscape here contributes to my level of mental wellbeing*
4. Inspiration, aesthetics, beauty, variety, opportunities to view Colour code: purple	a. the landscape is attractive b. the landscape looks varied and distinctive c. there are places to appreciate the view of the landscape d. there are appealing features within the landscape e. I appreciate the geology of the area here f. I gain inspiration from this landscape
5. Appreciation of presence of wildlife, improved ecology, biodiversity, perceived naturalness Colour code: green	a you can feel the presence of wildlife in this landscape b I hear wildlife in this landscape c I see wildlife in this landscape d I feel close to nature in this landscape e I feel I appreciate the ecology and biodiversity of the area f the landscape provides good quality habitats for wildlife g the landscape includes a multitude of vegetation such as wildflowers and trees
6. Improved understanding of eco-system functions, air quality, carbon capture, flood prevention Colour code: pink	a. I understand that the landscape here is providing improved air quality b. The landscape has a role in preventing floods here c. The landscape has a role in reducing carbon here

After this activity, respondents were taken through the potential changes being considered in Rushmere Country Park, using a 'funnel technique' whereby they were given the broad concept first then slowly given more and more information to gauge reactions at each stage. A written explanation of the changes was shown, as were a description of the potential benefits, maps and photographs of previous restoration work and images of the wildlife species in question. A discussion was had at each stage about their reaction to the changes. The session was recorded and the content analysed by the researcher subsequently with findings and insight being written up in a report.

Community Event

On Sunday 18th August, the Greensand Trust held its annual Country Fayre at Rushmere Country Park. The Trust provided the research team with a gazebo-type stand at the Fayre and display boards for the concept material were loaned by the management team at the

nearby Forest of Marston Vale community forest. Various items of concept material were displayed on the stand:

- a written description of the Bedfordshire Greensand Ridge NCA
- an A1-sized map of the Bedfordshire Greensand Ridge NCA (as shown earlier in this chapter)
- an outline map (also A1-sized) of the Heath & Reach Linkage Project area
- a 'before' map, showing habitats in the project area that existed before the mid 1990s (slightly larger than A3 sized)
- a map showing the distribution of notable wildlife species in the area (A1)
- the map of Rushmere Country Park (see earlier) showing potential habitat changes (slightly larger than A3 sized). This was supplemented with a substantial written description of the changes and their potential impacts (see text box overleaf)
- various A4 photographs illustrating the wildlife habitats in the project area
- various A4 photographs showing current and target wildlife species.

The stand also displayed a description of the several research tasks that people were asked to undertake (see later). It also had a 'comment wall'.

Potential Changes in Rushmere Country Park

There are plans to enhance and restore the wildlife habitats along the Greensand Ridge, to create an ecological network that will allow wildlife (and nature generally) to flourish and expand. The Greensand Trust is working alongside organisations including the RSPB and the Wildlife Trust to help protect heathlands and wildlife for future generations.

One particular local proposal is to link up the various areas of current heathland and acid grassland within Rushmere Country Park. Heathland is in decline across England, threatened by housing developments, forestry plantations and agriculture. Under this proposal:

- more of the conifers on the Oak Wood/Stockgrove boundary would be removed
- areas within Oak Wood could also be expanded by further thinning and felling
- low intensity grazing could possibly be introduced
- this grazing could also be linked with the areas of heathland and acid grassland at Rammamere Heath to the north of Brickhill Road, by placing cattle grids at either end of the road.

The introduction of low intensity grazing in the parkland at Stockgrove would help to control the growth of scrub, bracken and coarser grasses, and encourage the spread of heather and finer herbs, creating a mosaic of wildlife habitats something akin to what is seen in the New Forest. The more open conditions will allow heathland plants such as heather, gorse, and bilberry to re-establish, which in turn provides food and cover for a wide range of species including insects such as green tiger beetles and solitary bees, and reptiles such as adder and common lizard, and could encourage specialist heathland birds like woodlark, nightjar and tree pipit to return to breed in the area.

Concept Material used at the Rushmere Country Fayre

The stand was very well visited during the day of the Country Fayre, in fact the research team lost count of the number of people who undertook the various research tasks, although the total number was estimated at more than eighty, including children. The stand was reported by one visitor to be "by far the most-visited stand at the Fayre".

Typical View of the Stand

Visitors to the stand were asked to undertake three separate tasks:

i). to identify, on the map of the Greensand Ridge, places that were particularly important to them in terms of five 'cultural services' (although this term was not used). They were asked to identify these places with a series of coloured dots:
  - a sense of local history or heritage (yellow dots)
  - sport, or recreation (orange)
  - solitude or tranquillity (blue)
  - inspiration, or for the beauty of the views (red)
  - wildlife (green).

   They were also asked to identify on the same map (this time with black dots) any places in the countryside of the Greensand Ridge where there were any places that have poor quality countryside – places that need to be improved, for the benefit of wildlife and/or people

ii). to carry out the same task, this time on the outline map of the Heath & Reach Linkage Project area

iii). to identify, on the map that showed the potential habitat changes in the Country Park, the locations where they thought that:
  - the heathland restoration was a good idea and should take place (green dots)
  - the heathland restoration was a bad idea, where it should not take place (red dots).

In each of the exercises, people were able to use as many (or as few) dots of each colour as they wanted.

Example Task
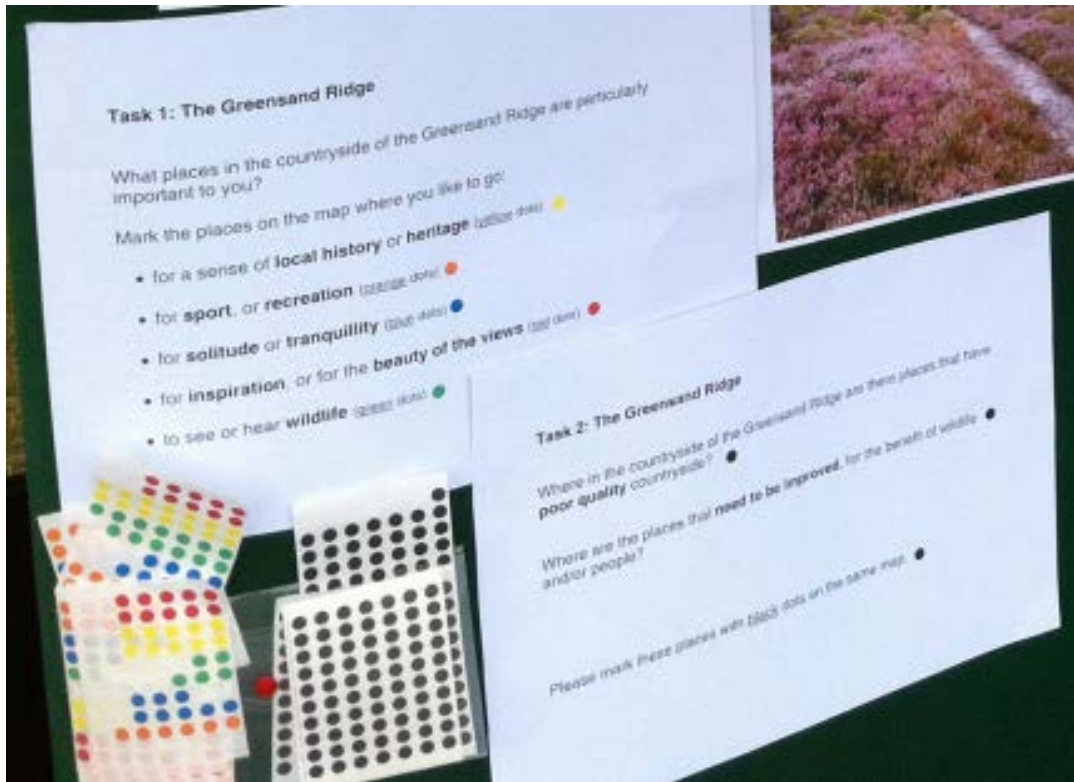
Finally, they were invited to make any other comments about the proposals:

- do you have any final comments about the possible plans for Rushmere Country Park?
- do you think the changes will enhance or diminish your enjoyment of Rushmere Country Park?
- why do you think this?

These comments could be made using post-it notes that were stuck to an adjacent 'comment wall'.

It may be noted from this description of the tasks that they were entirely 'self-driven', in that no formal discussion took place, nor were any questions asked. Researchers invited people onto the stand to take part in the research and were on hand to guide people through the tasks – but they tried to avoid any other interactions until the tasks had been completed. They also undertook and observation exercise to determine how well people carried out the tasks, which concept material was read, any issues of comprehension, and so on.

Face-to-face Interview Survey

During week commencing 19th August, a team of researchers carried out an in-home face-to-face interview survey in communities adjacent to Rushmere Country Park. This included the villages of Heath and Reach, Great Brickhill and the various small communities between the park and the northern parts of Leighton Buzzard. Target respondents for the survey were

chosen at random from amongst the 2,000 or so households within the area. A total of 26 interviews were carried out over a period of two days.

To be in scope for the interview, people had to be **users** of the local countryside – with any type of use being acceptable. There were no other exclusion factors, although any people who worked in land- or conservation-related occupations were recorded during the course of the interview. The interview took about 25 minutes, on average, to administer. The survey was incentivised by means of a small prize draw.

The questionnaire was structured along similar lines to the focus group and community event research, but with the tasks adjusted to anticipate the probable response to the use of researchers who, whilst professional, were not fully understanding of the landscape and ecology issues contained in the survey. The questionnaire also contained additional sections to address the issues that could be quantifiable.

The questionnaire, therefore, contained questions in the following categories:

- use of the countryside
  - purposes, frequency, motivations
- satisfaction with the local countryside
  - opportunities to experience cultural services[76]
- identification of important local places
  - and why they are important
  - using written descriptions and a map
- identification of poor quality places locally
  - and why they need to be improved
  - using written descriptions and a map
- identification of places within the Heath & Reach Linkage Project area that deliver cultural services (see below)
  - using written descriptions and a map
- attitudinal questions concerning
  - wildlife
  - ecosystem services
- response to the proposals for heathland restoration within the Heath & Reach Linkage Project area
  - components of the scheme
  - beneficiaries of the scheme
  - personal impacts
  - impacts on cultural services
  - changes sought to the scheme
- willingness to participate in future econet creation or maintenance
- profile questions
  - gender, age, working status, household size and composition, ethnicity.

The maps used to identify important and poor quality local services were adapted from the Bedfordshire Greensand Ridge NCA map, focussing on an area that extended from Leighton Buzzard in the south west to Ampthill/Flitwick in the north west. Other maps were as used in

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[76] Although not referred to as such, see below

the previously-described qualitative research. In both cases, however, the maps were reproduced much smaller – both maps were reproduced on an A4 scale.

As was the case with the community event research, respondents were invited to mark places on the maps with adhesive-backed coloured dots. The locations of these dots on the maps were subsequently coded by overlaying a grid system (approximately two-kilometre grid squares for the Greensand Ridge map, 200 metre squares for the Heathland Linkage map).

The text that was used to describe the proposals for the restoration of heathland within the Heath & Reach Linkage Project area was the same as used in the community event research.

A total of six cultural services were examined in this survey: local history/heritage, exercise and recreation, solitude and tranquillity, inspiration/beauty, wildlife experiences and ecosystem services (described as being aspects of the countryside that are "important for our wellbeing" and "providing protection for people (such as alleviating flood, improving air quality, or storing carbon)").

Self-completion Interview Survey

The self-completion interview survey was carried out in the same week as the interviewer-administered survey. As with this latter survey, households were chosen at random and people given the questionnaire for completion later in their own time. Households were selected from within the same geographical area, and the same recruitment criteria were used. The same small prize draw was used as an incentive.

The 12-page questionnaire was structured exactly the same as the interviewer-administered survey – with the same questions and tasks. The wording was, however, adjusted to reflect the fact that respondents were reading and responding to the questions themselves. The maps were also reproduced quite small, in order to fit within the questionnaire – the Greensand ridge map was about 14x12 cm and the project area map 11x10 cm.

8. Pilot Findings

8.1 Introduction

This chapter contains the findings from the pilot social research, undertaken in and around Rushmere Country Park. Four research methods were piloted in the course of the research and each research format followed a broadly similar approach:

- an exercise where people were asked to identify where in the landscape they experience positive and negative cultural services within both:
  - the Greensand Ridge
  - Rushmere Country Park
- an explanation of the proposed changes in Rushmere Country Park as a result of the Heath & Reach Linkage project
- an examination of people's reactions to the proposals and any modifications that they might like to see.

For a full description of the methodologies, please see the previous chapter of this report.

8.2 Cultural Services in the Greensand Ridge

Whatever the particular technique used – and each part of the research was very slightly different – it is clear that people were easily able to identify places on the Greensand Ridge that are important to them and which deliver various cultural services.

Community Event

At the end of the community event in Rushmere Country Park, for example, the final map was covered in different-coloured dots, each of which represented a different cultural service. Overall, as this first map[77] overleaf shows, people naturally tended to place their dots in areas closer to the event and where they lived but, nevertheless, there were localities further afield that are clearly visited and important to them (particularly around Sandy).

It is important to note that this should not be used as a map of all cultural services within the Greensand Ridge. It is a sample of services, recorded by visitors on the day of the research. A full map could be produced, but would require similar research in other communities along the Ridge to ensure that a fully-representative picture was obtained.

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[77] The map is a digitised facsimile of the map available during the Country Fayre and the dots placed by visitors on it

All cultural services
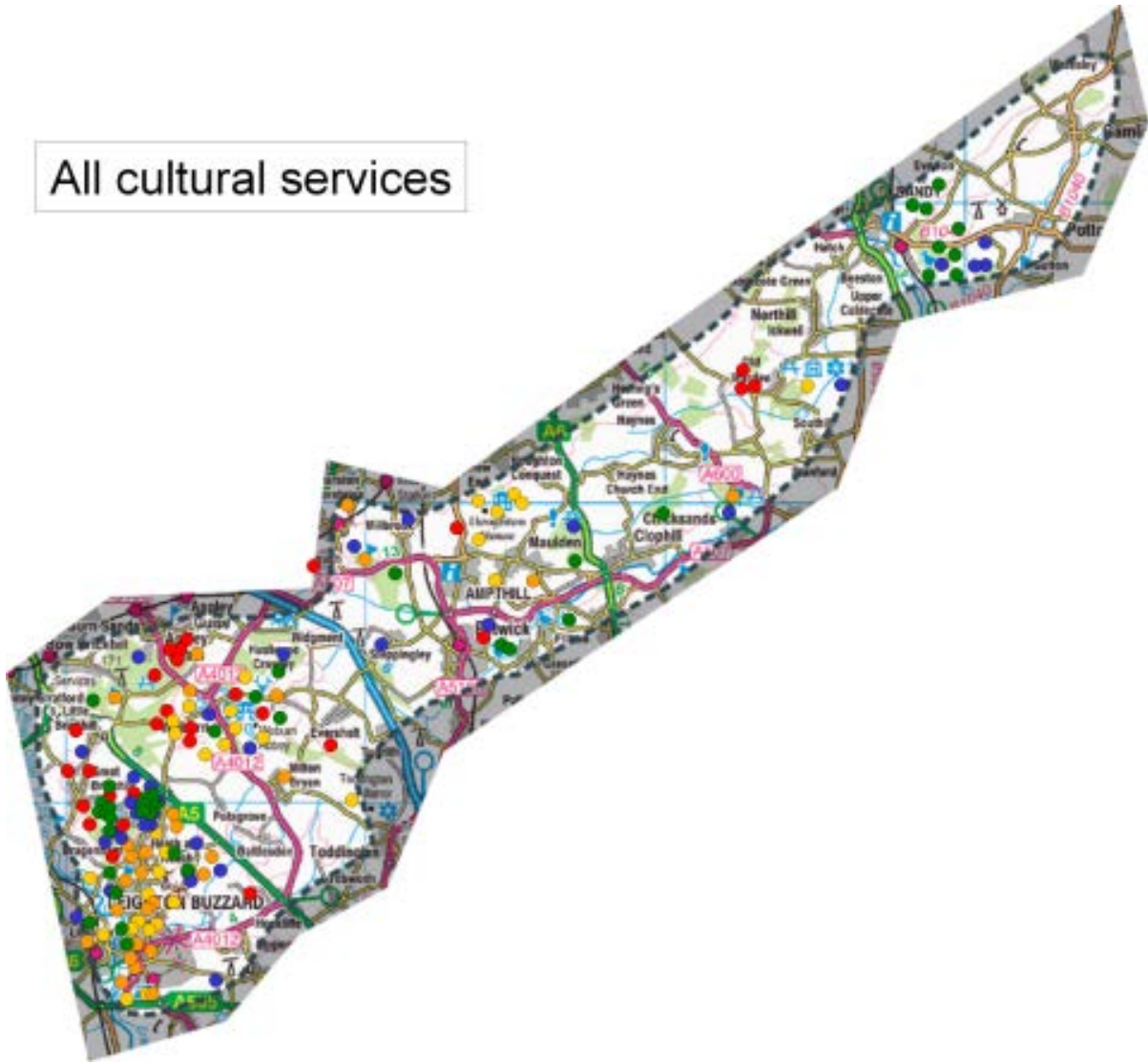
Because this map has been digitised, it is possible to disaggregate the cultural service dots and to show each cultural service separately. The maps that follow present the view for each cultural service, with some interesting findings emerging:

- although many of the dots are clustered around Rushmere and Leighton Buzzard, there are other significant clusters, for example in and around Woburn and Sandy
- localities for inspiration and beautiful views are principally in Rushmere, Aspley Heath and Woburn, but there is another cluster around Old Warden
- local history and heritage is found in Rushmere, Leighton Buzzard and Woburn, with other places on the map identified with the 'historical house' OS map symbol have also been marked (e.g. Houghton House)
- localities for sport and recreation are mostly marked in Leighton Buzzard, with other 'urban' areas also being marked – which suggests that 'walking' might not necessarily be associated with the term recreation

- solitude and tranquillity is, on the other hand (and naturally), a more rural cultural service – Rushmere Country Park is particularly important here, but so too is the RSPB reserve in Sandy
- the same is also true of places that give an opportunity to view wildlife. Other reserves marked on the OS map have also been identified (the overlap between places that deliver solitude and tranquillity and those that give the opportunity to view wildlife is quite marked).
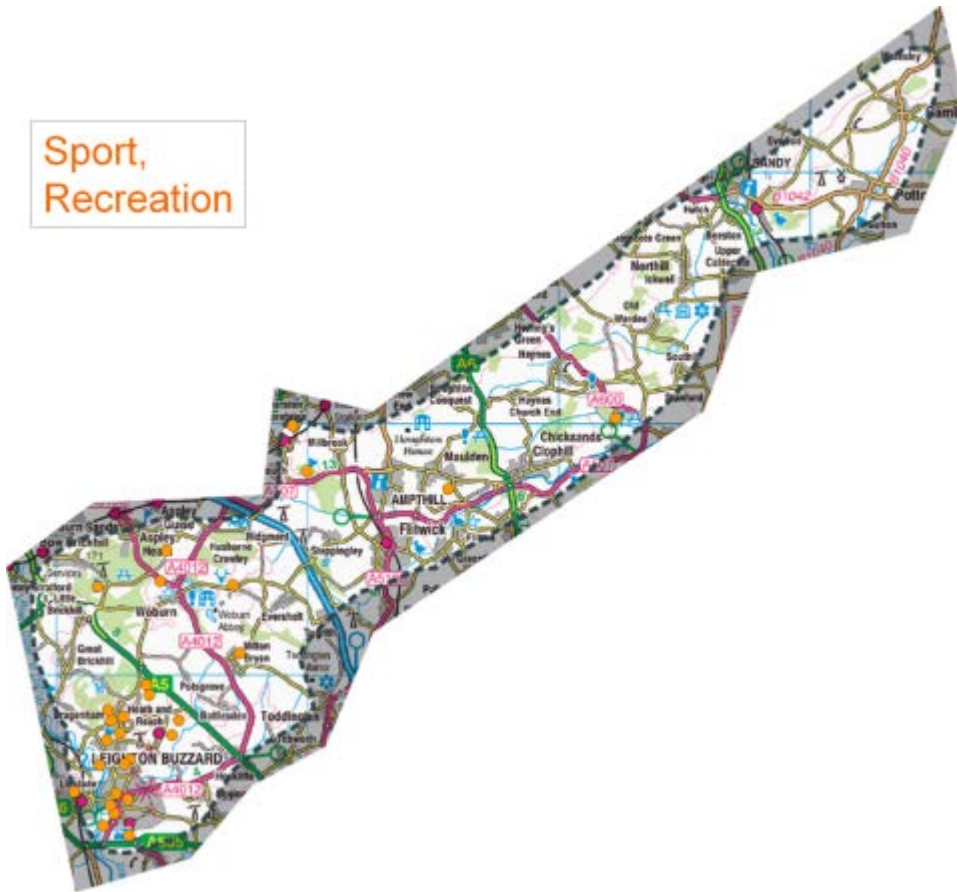
Inspiration, Beautiful views
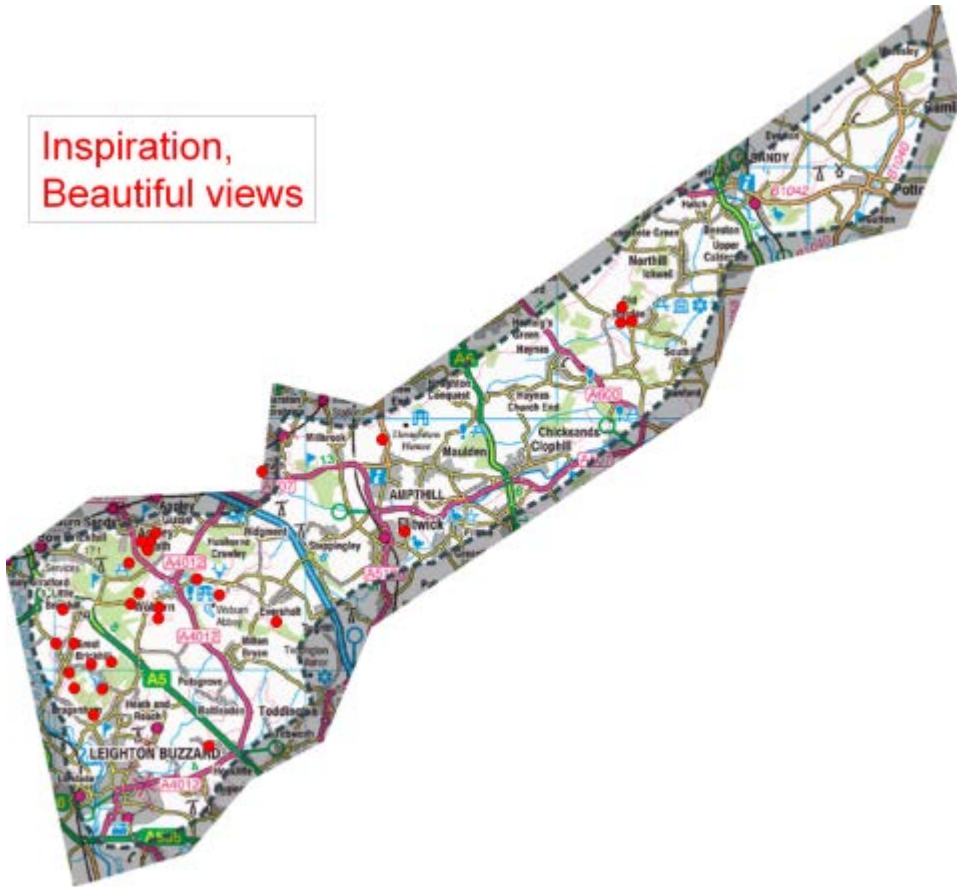
Local history, Heritage

Sport,
Recreation

Solitude,
Tranquillity

People were also asked in the community event to identify areas in the countryside of the Greensand Ridge that have poor quality countryside, that need to be improved for the benefit of wildlife and/or people. No-one recorded any localities of poor-quality countryside.

Focus Group

Only a few had awareness about the Greensand Ridge as a landscape type and only a few understood the geological nature of the Ridge, although several knew of the Greensand Ridge walk:

"I was going to mention it earlier but I thought it sounded a bit nerdy. Greensand Ridge. You can sort of see it. I have read the board a million times as well! But I can't remember. It explains where it runs from and why it is. It isn't actually green sand but it is sandy."

Across the Greensand Ridge, the ability to appreciate wildlife in the designated nature reserves was marked, especially in Sandy and Marston Vale[78] – but also in wooded areas such as Rushmere Country Park.

"We used to lie on the floor and listen to the bats flying around!"

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[78] Marston Vale is actually outside the Greensand Ridge area, but not necessarily perceived as such.

"He will point out orchids and things that I have never noticed. My Dad points them out. When you are with somebody that knows about wildlife, yes you notice it.

The research participants in the focus group believed that their area provides good access to the countryside, but that there were clear development pressures from the expanding towns and road/motorway network. This helped them to understand why principles of re-connecting nature were being considered. The idea that certain species might not have enough habitat in which to flourish seemed believable in modern society, they thought, with mankind's intervention not always being welcome. However, the primary benefits they gained from the landscape were related to their own enjoyment, health, happiness and escape rather than directly from an innate concern about the preservation of wildlife.

"The value of open space. Being able to look around at beautiful countryside and it makes you feels good."

"You have good conversations"

"Mine's a dog…nice, getting away from people. Stress-free but exercise as well."

"There are plenty of places you can go to, country parks and forest centres."

In identifying cultural services across the Greensand Ridge, the area is seen to be characterised by a number of large historic pieces of estate land, which have contributed significantly to cultural-service delivery in the area. People were able to mark places of historic interest such as Woburn Abbey, Houghton House and other historic monuments. The 'softer' types of historical feature were less mentioned but this could easily be probed and encouraged in a more finely-tuned methodology beyond this pilot.

The active places (recreation, sport – marked with orange) were often easy to identify for the majority of respondents. These were popular places with paths, cycle tracks and golf courses. Rushmere Country Park, Marston Vale and the canal at Linslade were talked about in this vein. The more adventurous in the group marked places that were more off the beaten track, however, and not necessarily on designated walks. For families, the active places for exercise were often linked to more structured places with facilities such as a café, or toilets. Stockgrove Park (the old name for the park) and areas around Brickhill were often mentioned as being good for more active recreation, as was the canal to the west of Leighton Buzzard.
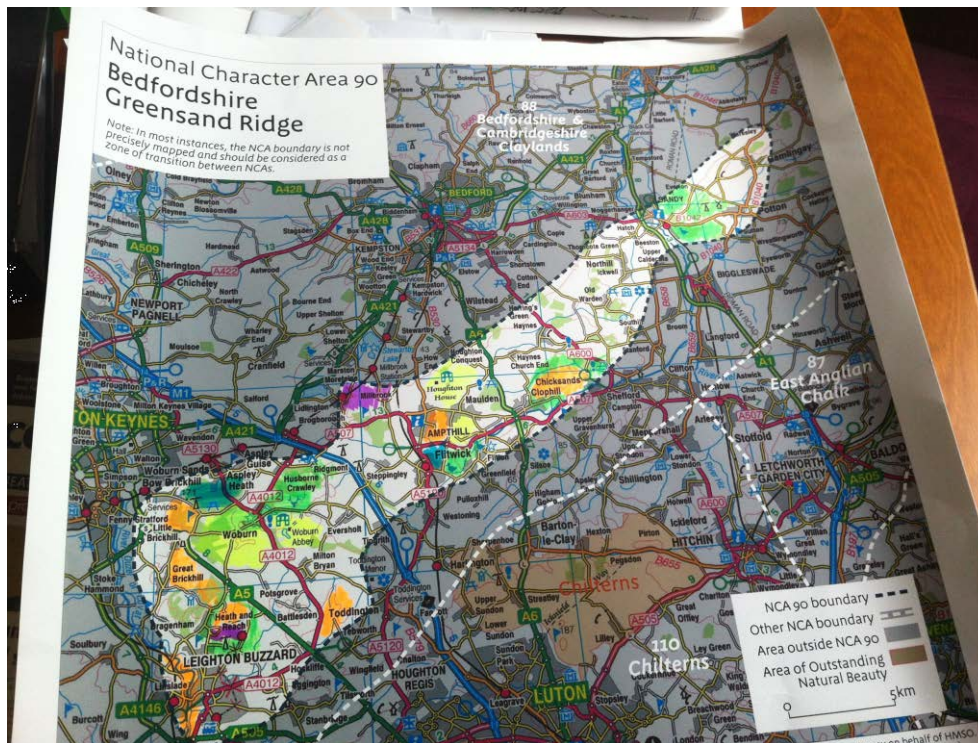
"Stockgrove Park. There are different walks and they had a new café. That makes a difference if you can have a coffee and feed people then you are more likely to go rather than just an open space with nothing, with children."

"You have to pay to park there. You can park on the road, which we try and do. If it goes towards the upkeep then fine but it is a country walk so…"

The more esoteric cultural services such as tranquillity and solitude were placed in more intimate areas where one could guarantee finding somewhere to be alone. These would often be wooded areas, but also included lakeside or river locations.

The beautiful, inspirational places (marked in purple in the focus group) were often picked to be special places with a lot of variety of land cover and interesting variations in height. Ampthill Park was marked as being inspirational for photography or painting, for example. Marston Vale nature reserve was also discussed (albeit wrongly identified as being in the area) for delivering inspiration and beauty.

Interestingly, there were one or two places, such as Rushmere, that were multi-functional in that people identified all of the cultural services and marked them on the maps. There were also several places that were regarded as being good at delivering one or two services – and several where only one type of cultural service could be experienced. It was evident that people did differentiate between places in terms of the cultural services to be found there.
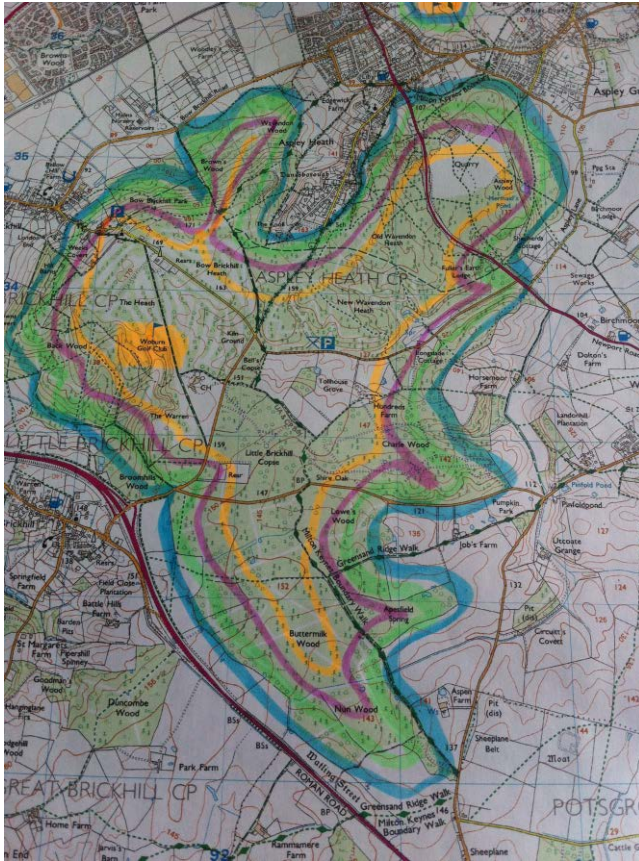
8.3   Cultural Services in Rushmere Country Park

There was less detailed information in the focus group about Rushmere Country Park since people were recruited to be users of the whole of the Greensand Ridge NCA, rather than being regular users of Rushmere itself. Notably, Rushmere was referred to as Stockgrove Park, Rushmere Park and Heath and Reach almost interchangeably – which might indicate that it is not seen/marketed as a single entity further afield, and also might reflect the previous well-known identity of 'Stockgrove Country Park'. It is, however, clearly known as providing possibilities for escape as well as active recreation.

In the community event, however, the mapping exercise carried out for the Rushmere Country Park area produced equally interesting results. The overall map – that includes all five positive cultural services, as well as black dots that represent poor-quality areas – is shown below. It would appear that positive cultural services are clustered in three principal areas: adjacent to the visitor centre and café (actually quite near the location of the research), around Stockgrove Lake and in Kings Wood. Just one main area was identified as having poor-quality countryside and this was alongside Linslade Road, on the southern-most boundary of the Park (although there is also one black dot near the Brickhill Road entrance). Unfortunately, it is not possible to identify why these areas were thought of in this way.
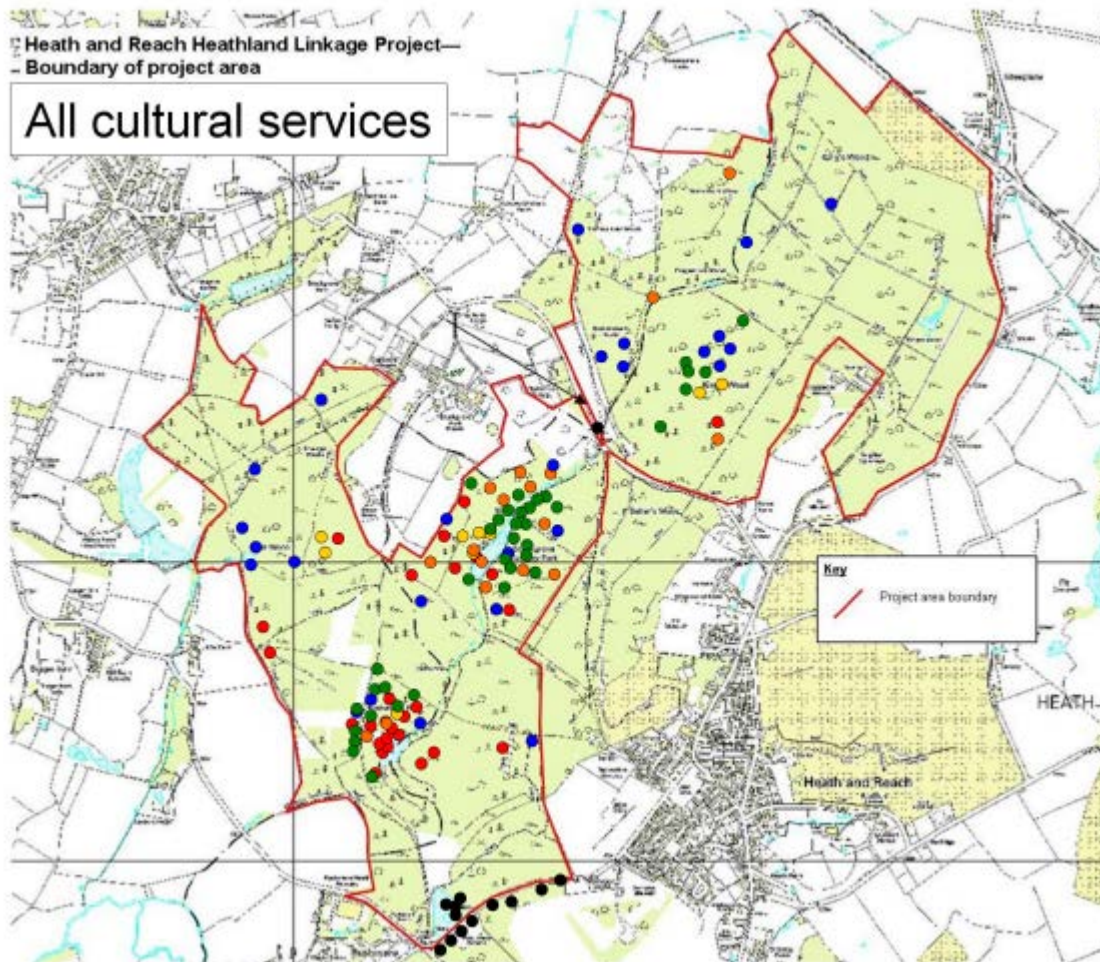
The disaggregated maps shown over the next few pages also reveal some intriguing results:

- inspiration and beauty tends to be experienced near the visitor centre and around Stockgrove Lake
- there are very few history and heritage locations – Stockgrove Lake has the largest cluster
- Stockgrove Lake is also important for sport and recreation
- solitude and tranquillity is widely dispersed across the whole Park
- wildlife is most seen in three areas: near the visitor centre, around Stockgrove Lake and in Kings Wood.

The importance of these findings for the proposed econet in Rushmere Country Park are discussed later in this chapter.

Heath and Reach Heathland Linkage Project—
Boundary of project area

Inspiration,
Beautiful views

Key
Project area boundary

HEATH

Heath and Reach

Heath and Reach Heathland Linkage Project—
Boundary of project area

Local history,
Heritage

Key
Project area boundary

HEATH

Heath and Reach

Heath and Reach Heathland Linkage Project—Boundary of project area

Sport, Recreation

Heath and Reach Heathland Linkage Project—Boundary of project area

Solitude, Tranquillity

Heath and Reach Heathland Linkage Project—Boundary of project area

Wildlife

Key — Project area boundary

8.4   Perceptions of Wildlife

In the focus group, it was found that people's technical knowledge of wildlife – and of habitats – is quite limited. People tended to value different species according to their knowledge and whether or not they could be experienced, during their time in the landscape. Nevertheless there was evident emotional attachment to some species, particularly where the perception was that the species was rare or a local speciality.

The presence of wildlife was appreciated for the way in which it contributed to the 'atmosphere' of a place – and this applied in particular to species that could be seen or heard. Wildlife was also appreciated for the opportunity to teach youngsters, or to learn from a personal perspective. Appreciation was enhanced on those occasions where 'discovery' was part of the experience, when they were surprised by the presence of wildlife.

But not all species were positively viewed – there is a level of fear associated with some species. Perceptions of ugliness can also be an important factor.

The wildlife and environmental benefits that Rushmere Country Park might generate were also addressed in the surveys through a few extra questions. The first presented a series of attitudinal statements relating to wildlife and asked people to say which they agreed with. As may be seen, there is total agreement with the idea that wildlife areas of the countryside should be protected and strong support for the idea of restoring or improving areas for wildlife benefits – even if this means restrictions.
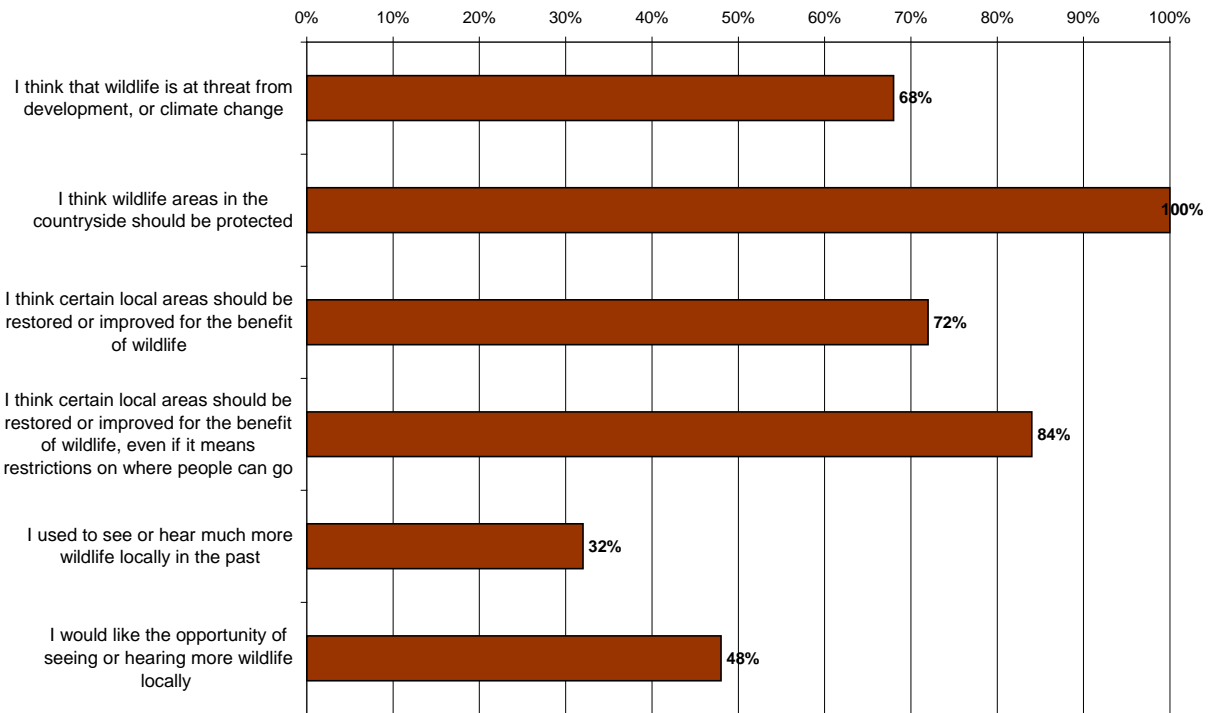
The second question took a similar approach, this time looking at the benefits of other ecosystem services.
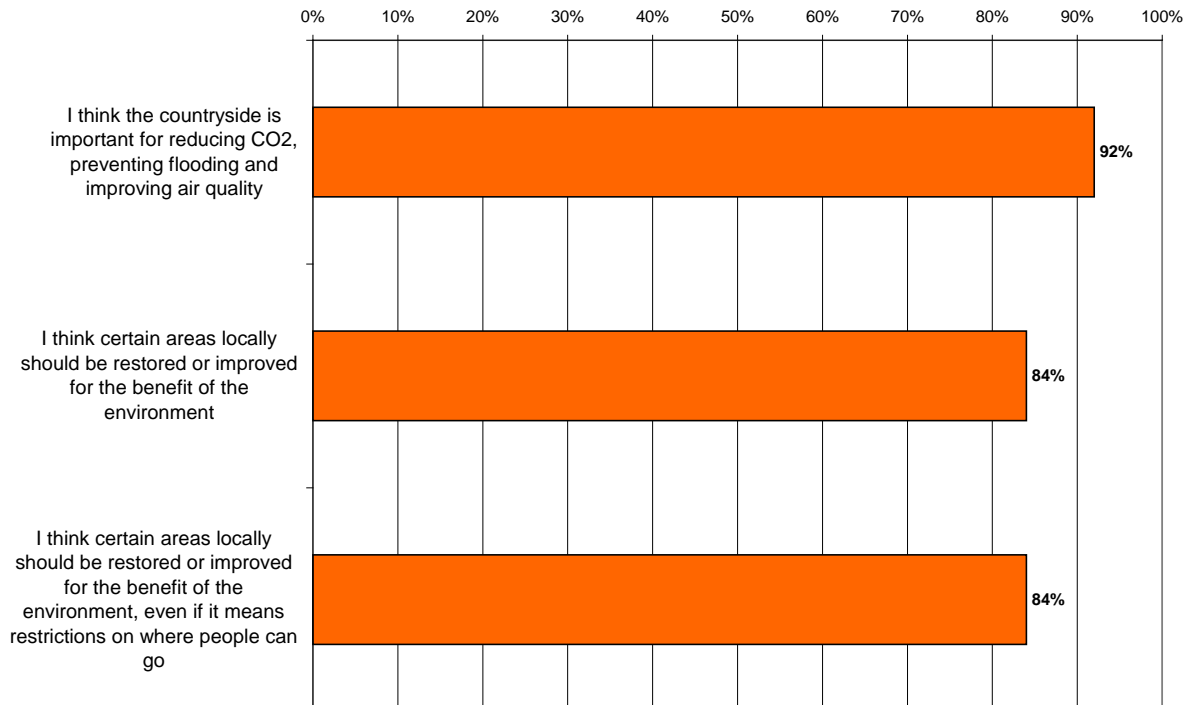
8.5 Heath & Reach Linkage Project Proposals

Understanding & Acceptability of the Need for Change

In the focus group, the initial reactions to the potential changes did provoke some initial concerns, with the idea of woodland removal being considered the most difficult to understand. This type of change will always be an emotive subject for people due to what woodlands represent culturally (solitude, escape, recreation etc). People needed a great deal of explanation of the reasons behind the changes and it was not until the full picture was gathered that the change was found to be acceptable. The discussion needed to allow people to come to terms with the removal of trees as an option using a number of nuggets of information. That said, people also stated that if the changes were small, incremental and didn't affect their usage then there would be little problem. However, some remained concerned:

"If that is some family's favourite walk they do every Sunday and it is all ripped up then of course they are not going to be happy."

In principle, the idea of recreating a habitat for wildlife was an interesting one and expected of an organisation like the Greensand Trust. However, neither the species of interest or the landscape type itself (heathland) were sufficiently motivating in themselves for people to be immediately on board with the proposed changes.

"I think if people see that the Greensand Trust or the Wildlife Trust is involved that would probably add a bit of confidence. It is an organization that is fully versed in these things and understand the greater good rather than a park just on a whim saying right we are going to pull some trees out."

People did not initially understand what a 'heathland' is, so providing examples (such as the New Forest) was helpful – but they also needed a rationale: why would you need to 'restore' a heath? Acceptable arguments in response were that they are 'in decline' in the UK, or that it was originally heath and historically trees were mistakenly planted in the first place.

"I think with a lot of things at the moment, if you don't explain the full ins and outs then that is why people protest. Often people protest because they are not educated enough that there might be a bigger picture."

"I do trust the experts."

"I don't want the adders to come back. I don't mind beetles or even the lizards."

"Who decides though what value does a beetle bring versus a tree?"

People wanted to know:

(a) what type of trees are being removed? If conifers, they cared less than if the trees to be removed were broadleaf, native or very mature, ancient trees. People have greater affinity with the latter because they are more in line with their cultural heritage – of playing in woods, the dappled light creating a magical atmosphere and greater

opportunities and feelings of history. The removal of broadleaved woodland (the name 'Oak Wood' suggests it contains just oaks) would therefore need more justification

"I suppose some people might get agitated if quality trees were being removed. It is difficult to tell from this....conifers? Well, if some conifers are lost doesn't matter but what does it mean areas within Oak wood expanded what does that mean? Felling of oaks? If it went too far then there is a conflict between the benefit to habitat they are trying to re-create and the quality of the visual amenity perhaps. I would need to know more about that. I would need to know what specifically is going to be lost."

(b) what is the scale of the removal within the overall context of the park? If minimal (i.e. 10%), or in small patches then the idea becomes more acceptable: greater acceptance was evident once the map of the planned change was shown because there was plenty more woodland available.

"It is not like you are going to devastate an entire woodland."

(c) is it where people mostly go, in terms of footfall? Would it be necessary to offer alternatives? This relates mainly to access and paths where people derive their active recreation and less so the more passive cultural services such as the 'stand and stare' moments of peacefulness.

"Also, while it is being done there are lots of other places to go. As long as there is constant communication about when it is happening and why it is being done then fine"

"There are an awful lot of other walks you can do around that area so if they did do some works I don't think people would be too upset about it."

(d) does it really work? Can we have interpretation signs explaining progress? This is both about the believability of the science to combat people's natural cynicism and thinking into how people will perceive the change as it progresses. There was a call for the transition to be well-managed and explained in an interactive way.

"They would have to have an information board with an update on it. e.g. we've done a survey and here is x amount of beetles here and it has worked."

(e) is there a loss of visual amenity? This relates to a fear that change will potentially ruin beautiful views or reduce the specialness of a place (in cultural-service terms: inspiration, aesthetics). A heath is imagined to be vast and monotonous, but when images where shown of the heathland area adjacent to other woodland the perceived fear was diminished. In general, if a variety of land cover is maintained within view this is considered appealing and conducive to cultural services. Also, pictures of previous restoration a few years on, encouraged people to believe that the initial negative look of the removed trees would only be temporary.

"You wouldn't want the whole area to be like that. (heathland)"

"It looks like there is a lot more diversity there already not like Dunstable Downs with just one thing."

"Well if there is variety like that clearing there with the path and there is woodland behind it. It looks alright."

"It is about getting a balance. It may be fine if it is done sensitively."

    (f)   will the area be too open? Openness is valued by many for gaining height and seeing views but can make some people feel too exposed. Again when variety is present the perceived threat of the change is reduced. Also, if it can be argued that the new openness gives enhanced opportunities.

'it might be good for flying a kite but I personally find woods more interesting'

There was an expectation that the changes would be carried out with public participation – such as schools being involved by planting heather. People imagined that, over time, they would appreciate more wildlife being present. This could be either through reading about it (on bird-spotting boards, interpretation boards, in the paper) or actually experiencing it or its contribution to the general atmosphere.

"Most of us value the sound of birds even if we don't go birdwatching. You only have to listen to them, to appreciate them. It all fits together."

In the case of the specific species being encouraged here they realised that some of them were unlikely to be 'experienced' by them. The potential for rare birdlife to return was thought to be beneficial from a local heritage/pride point of view, whilst the beetles and slow worms could be educational for children. However, the group did admit that the green tiger beetle, adders etc were not appealing and might need *'a bit of a PR job'* doing on them as the scheme progresses. Again, whilst these people felt less inclined toward some of the species, they thought that schools and their children should be involved and taught about them with activities such as 'bug-hunting' – and that this would change perceptions over time.

"With the kids we like to hunt for bugs and insects and butterflies."

Cultural Service Impacts

The maps shown in earlier sections of this chapter have indicated that there are some areas within the park that deliver high – and varied – levels of cultural value to visitors. To some extent there is an overlap between these areas and those earmarked for restoration under the Heath & Reach Linkage Project proposals. The next map has been generated from the mapping of cultural services by the community event participants – it clearly shows that one area, around Stockgrove Lake, has been identified by many people as providing all five of the cultural services (although little in the way of solitude and tranquillity). This area is clearly an important one in the overall public experience of Rushmere.

Heath and Reach Heathland Linkage Project—Existing areas and potential heathland/acid grassland linkages

Cultural service-Restoration overlap
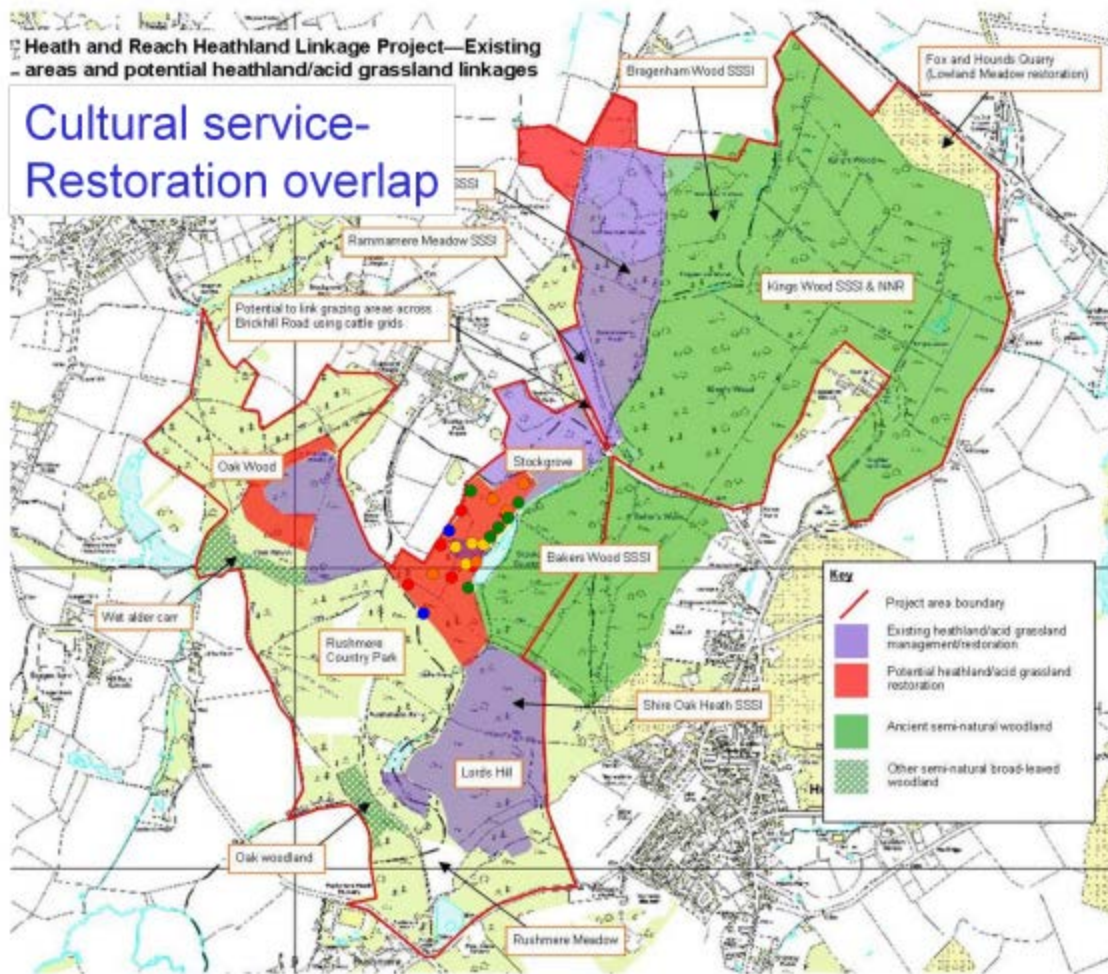
However, the map also shows that the other two restoration areas (near Oak Wood and to the north of Rammamere Heath) have no cultural service experiences recorded by this group of people – although instances of solitude and tranquillity can be seen on the edges of Oak Wood.

The findings from the two surveys have shown that the proposals would have an unequal impact upon local residents' experiences of cultural services within Rushmere, as the next chart shows. Positive impacts would be greatest on recreation and tranquillity, with the impacts of beauty being tempered by nearly one in six people who thought the plans would have a negative impact here. However, the greatest positive impacts are seen to be on wildlife and the environment.

Do you think the plans would be positive or negative for ...

Legend: Negative (red), Positive (green)

Category	Positive	Negative
... local history & heritage	43%	-13%
... opportunities for exercise and recreation	70%	-9%
... opportunities for solitude and tranquillity	70%	-13%
... the beauty of the views	65%	-17%
... wildlife, now or in the future	75%	-8%
... the environment	71%	-13%
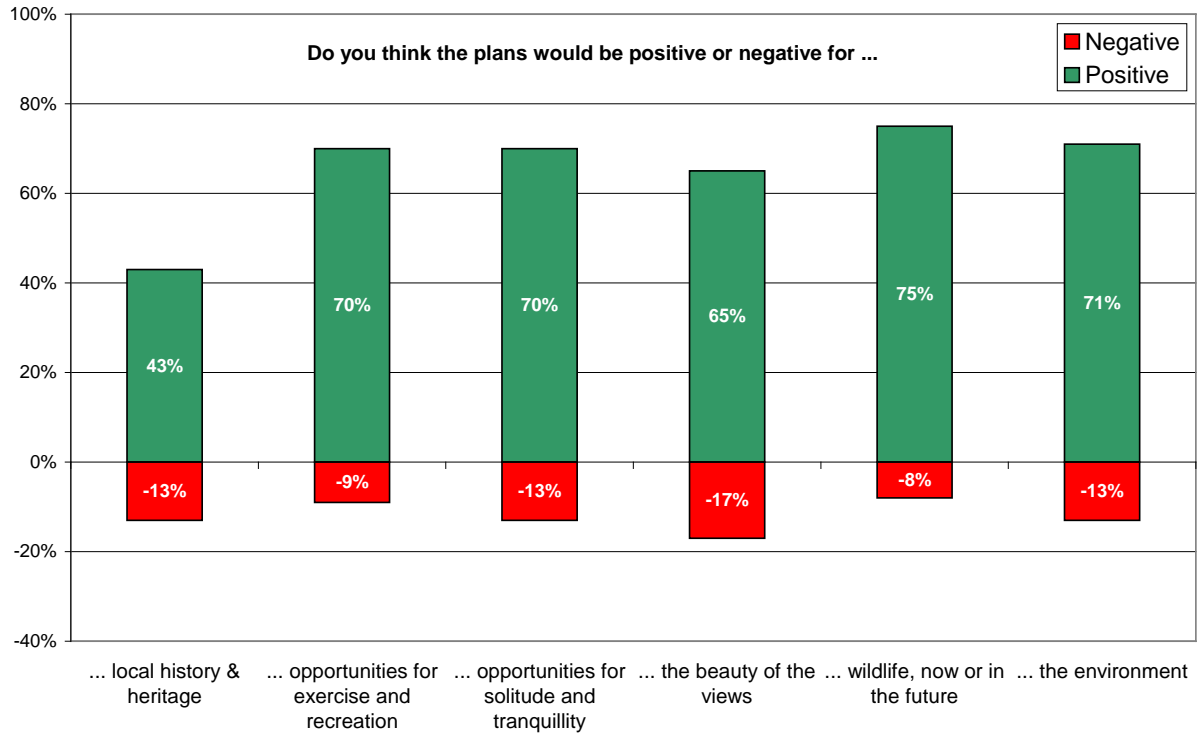
Public Support for the Proposals

There is evidence of broad public support for the proposed changes throughout the pilot research. In the community event, for example, positive reactions outweighed negative ones by about 14:1. When people were asked to place green or red dots on the Rushmere map (where green was in support of the proposals and red against them) they created the following map (see overleaf).

As may be seen, not all the dots were spatially aligned with the restoration areas – and a further eleven people put their dots on the paper that contained the description of the research task, all in favour.

Heath and Reach Heathland Linkage Project—Existing areas and potential heathland/acid grassland linkages
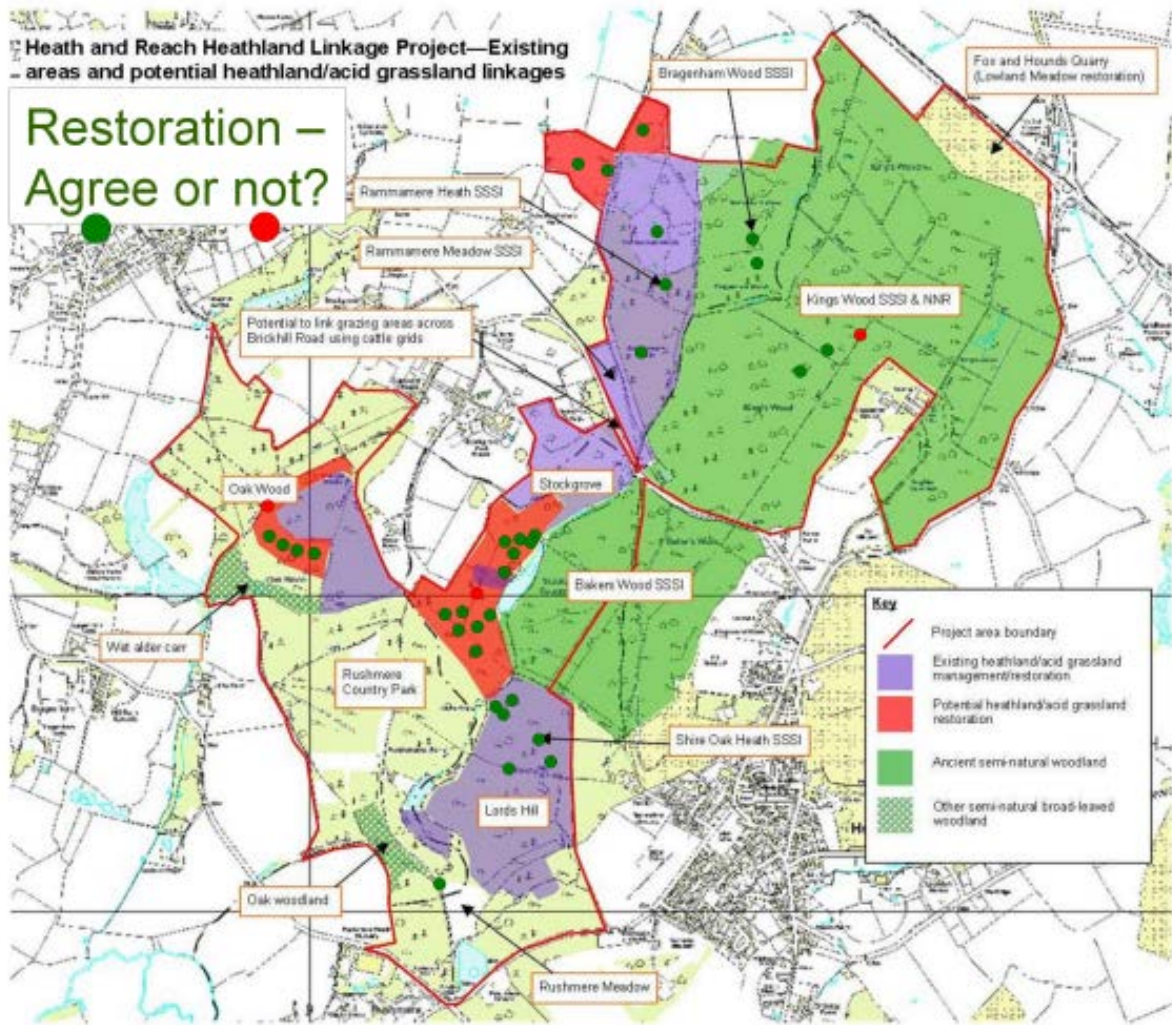
Amongst residents of the local community, however, support was not quite as strong. More than three quarters (77%) said that they were in favour of the plans, with 12% saying it was a poor or very poor idea (a ratio of about 6:1 in favour). The findings from the two surveys have been combined to produce the chart overleaf that shows this outcome.
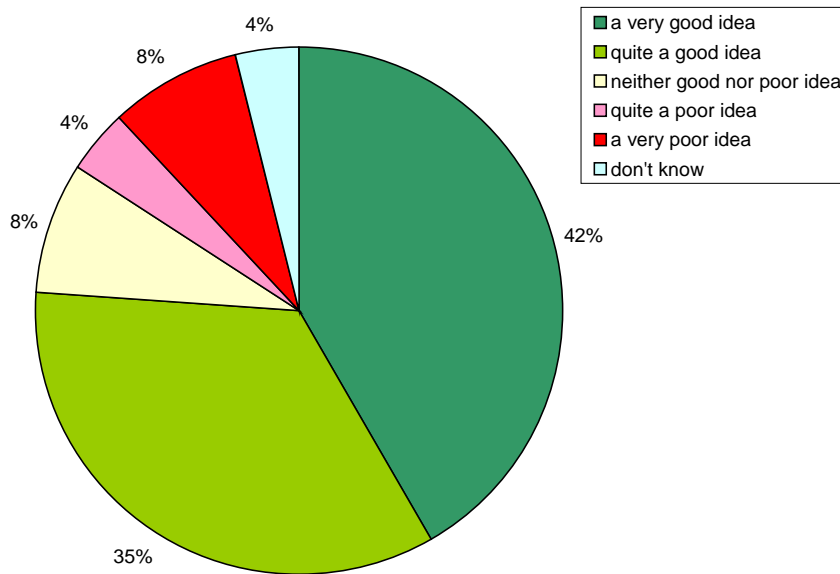
In terms of the components of the restoration proposals, there was greatest support evident from the surveys for the idea of **thinning** the existing conifer woodland – and greatest resistance to the idea of **felling** this woodland (in this latter case, nearly 40% were opposed). The introduction of low-density grazing, and the placement of cattle grids on Brickhill Road, were broadly supported, but many more people (in these cases) were unable to say definitely if they thought these ideas were good or bad ones.
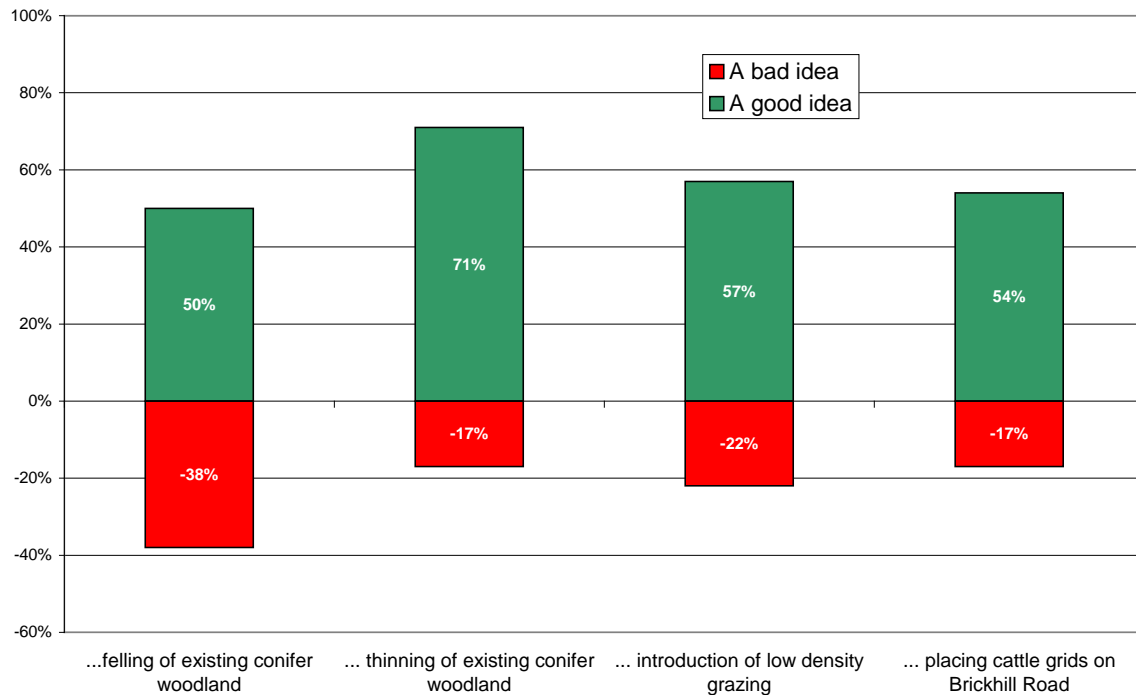
Respondents in the survey were also less able to judge who the beneficiaries would be of the proposals – themselves, other locals or people who live elsewhere. This next chart does

show, however, that slightly more people think that they and their families would benefit more.
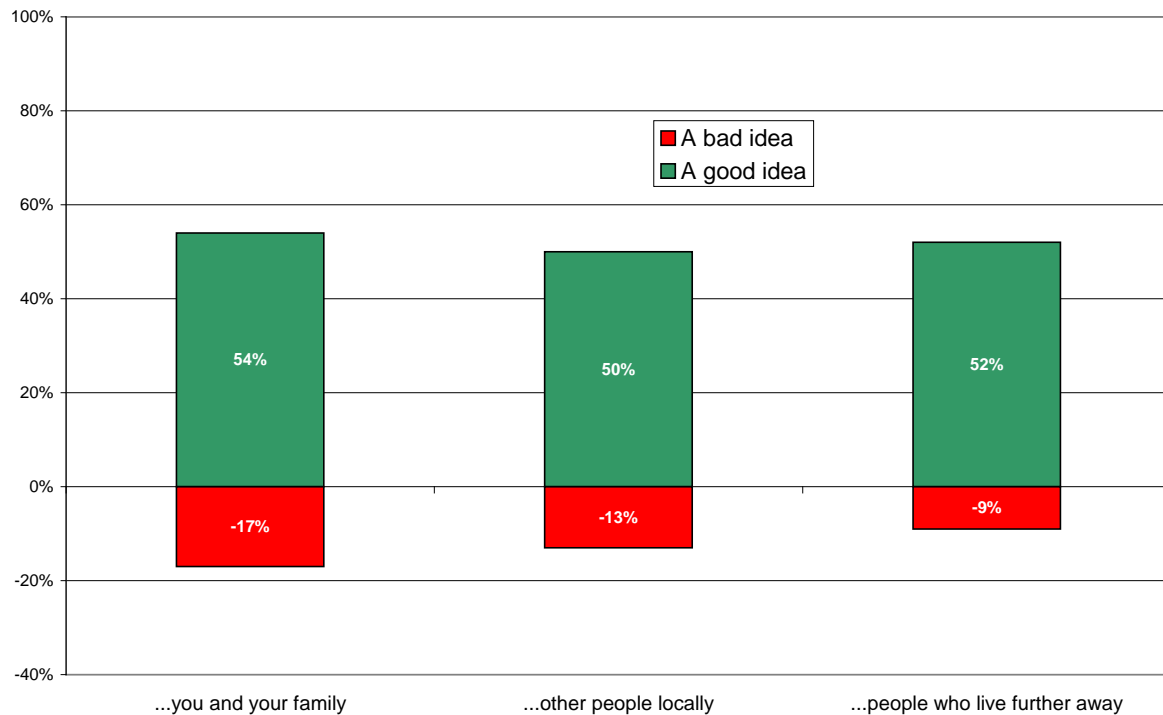
Local people were given the opportunity in the surveys to say if there were any changes to the proposals that they would like to see. Very few answered with anything concrete, and most were unrelated to the proposals as such, with example quotes being as follows:

Improve access to River Ouzel

Not without more information but no wind turbines please

The experts know best

I would keep it as it is

More information of what they're doing. Need more detailed works

More bike trails

Bigger car park at Stockgrove, if you want more people to go there.

Works in providing expensive wooden exercise features and boards at Tiddenfoot Lake are a total waste of precious council tax money.

At the community event, however, visitors were much more forthcoming when they placed their reactions on the 'comment wall'. The following are examples of their responses – again, not all are directly related to the proposals, but they are nevertheless useful examples of visitor opinions.

I think there is enough acid heathland at the moment. I find existing woods more interesting and tranquil.

Remember it is a country park. Please do not turn it into a town park. Wildlife is important.

Don't make it too people-friendly – danger it could lose the natural look and feel.

Of the trees that will have to be removed, will any be planted elsewhere to replenish the sustainability to the woodland?

Sometimes trees need to come down in order for what is underneath to grow and mature!

Not too people-friendly – tranquillity

Think should restore a small area to see if able to restore and manage, as heathland is hard to restore and management has to be ongoing, which has financial costs

Make more wildlife areas

Don't make it too commercialised

Will the projects be sustainable?

Will we be able to fish here again?

8.6   Satisfaction with the Local Landscape

The study team has recognised that research into a proposed econet – as seen in this pilot – could provide a vehicle for monitoring the future success of the econet, in terms of its impacts on local people. The theory is that a successful econet would possibly increase their use of the landscape and their satisfaction with it. So two questions were included in the pilot surveys that would provide a benchmark for monitoring the success of the Rushmere Country Park restoration proposals, if they go ahead.

The first question examined use of their local countryside by residents. As may be seen below, nearly three-quarters of residents go out into their local countryside at least once a week – and more than a quarter are doing so every day.
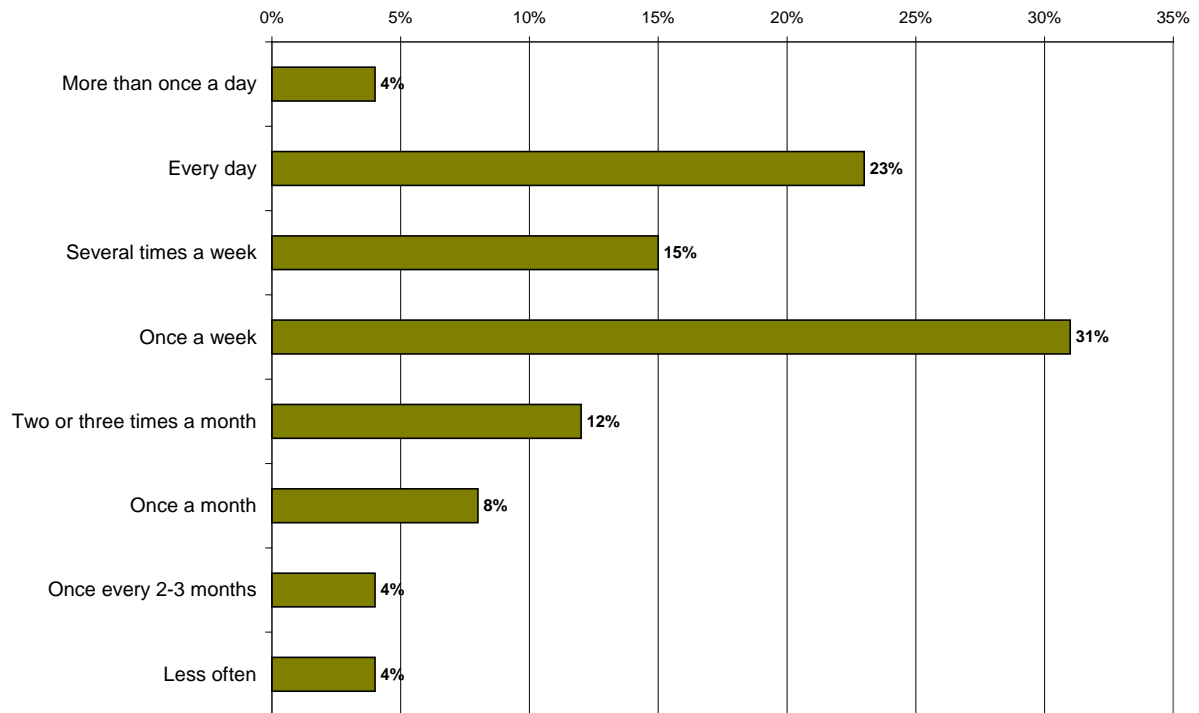
People's satisfaction with their local countryside was the second question and was asked for a series of nine different aspects – from accessibility, to recreational opportunities and the provision of information. To some extent these overlap with the list of cultural services used generally throughout the research and so could be seen as a general indication of the capacity of the local landscape to deliver these services.

As may be seen below, satisfaction is greatest with the opportunities to walk locally – with the provision of footpaths and areas to walk in. Ninety-six percent of residents rated this positively. Their local countryside is also seen particularly positively for the enjoyment of views (89%), solitude and tranquillity (89%) and the opportunities to see or hear wildlife (85%).

Their satisfaction with the local countryside is not all equally as positive, however – far less satisfaction is evident for information (guides or boards), other types of recreation (cycling or horse-riding) and the opportunities to understand and learn about local history and heritage. In all three cases, much more dissatisfaction was also evident.

Legend:
- Quite satisfied
- Very satisfied
- Quite dissatisfied
- Very dissatisfied

Categories and values:

... opportunities to walk in the countryside (provision of footpaths and areas to walk in)
- Very satisfied: 50%
- Quite satisfied: 46%

... opportunities in the countryside to rest and enjoy the view
- Very satisfied: 35%
- Quite satisfied: 54%

... opportunities in the countryside for solitude and tranquillity
- Very satisfied: 54%
- Quite satisfied: 35%

... opportunities in the countryside to see or hear wildlife (birds, animals, plants)
- Very satisfied: 50%
- Quite satisfied: 35%
- Quite dissatisfied: -4%

... the facilities to access to the local countryside (eg car parks or suitable bus stops)
- Very satisfied: 27%
- Quite satisfied: 54%
- Quite dissatisfied: -4%

... opportunities in the countryside for inspiration and beauty
- Very satisfied: 38%
- Quite satisfied: 38%

... information about the local countryside (guides, or information boards)
- Very satisfied: 27%
- Quite satisfied: 42%
- Quite dissatisfied: -12%
- Very dissatisfied: -4%

... opportunities in the countryside for other types of recreation (cycle paths, horse-riding trails, etc)
- Very satisfied: 20%
- Quite satisfied: 32%
- Quite dissatisfied: -4%
- Very dissatisfied: -4%

... opportunities in the countryside to understand and learn about local history and heritage
- Very satisfied: 8%
- Quite satisfied: 23%
- Quite dissatisfied: -15%

9.   Methodological Outcomes & Implications

9.1   Introduction

This chapter has a dual purpose. The first is to appraise the various methodologies used during the course of the pilot research in the Greensand Ridge.

The second purpose is to explore the implications that arise from the pilot for the application of social research methods in the context of future econet studies (and other types of landscape change).

The chapter also contains some proposals for refining and developing the methodology, in the light of the outcomes of the pilot research.

9.2   Appraisal of Pilot Methods

Introduction

As has been described earlier, four research methods were tested during the course of the study pilot. They were:

- a workshop (or extended focus group)
- a community event
- a face-to-face interview survey
- a self-completion interview survey.

In all four cases, the aim of the research was to test the suitability of the technique to:

- gather public perceptions concerning cultural services and where they are delivered within the landscape
- examine the public's appreciation of an econet proposal and the impact that the proposal might have upon their enjoyment of the landscape.

The extent to which these core objectives were met is described below.

The Focus Group Approach

a) success factors

The focus group conducted in Leighton Buzzard was extremely useful for understanding the cultural services mapping. It highlighted that people were able to understand the cultural services groups with minimal explanation beforehand and were able to carry out the task.

There was a need to have a large-scale map available, as the small A4-sized version made it too difficult for people to complete the task. On the large-scale map of the NCA people guesstimated exactly where to mark their cultural value 'patch'. The large scale OS map was also very easy for people to use as they were more able to follow topography and spot nature reserves etc. So, although they can be lead by the symbols (e.g. historic site), having more information enabled their memories to be jogged.

We trialled the use of highlighter pens instead of spots, as used in the community event. This had the effect of enabling people to draw around a whole patch of landscape to mark the extent of where they experienced 'inspiration' (etc). Other people saw the opportunity to encircle whole woodlands with up to 2 or 3 colours showing that a place could provide both physical activity and opportunities to view nature. However, the highlighters could not be drawn over each other as the colours become indistinguishable. The activity was a collaboration (conducted in pairs) rather than an individual response. Dots are easier for more people to do on the same map.

Some of the cultural services were quicker to complete, such as places for sport/exercise and history, whist others such as solitude and inspiration took more thought. People struggled with marking 'local identity' and 'education'.

Most participants were not able to mark places that provided flood prevention and carbon capture. With some explanation they would have marked woodlands and rivers but there was not enough time in this exercise.

The section on the changes at Rushmere Country Park was greatly helped by the information provided on maps, wildlife etc. The written explanation worked well and the moderator was able to probe and prompt around people's understanding of the issues. Also, non-verbal clues were observed such as 'recoiling' at the idea of snakes or 'bridling' on hearing about the removal of trees etc. It was also possible to see the different responses across the spectrum of people who are more or less engaged with the landscape, or who currently have young children versus being retired, and the effect that has on opinions and evaluation of cultural services.
There was a tendency for people to 'shut down' when discussing details of individual species and management actions. The moderator was able to keep the attention by keeping the discussion going, using images of the restored heather or playing devil's advocate type exercises.

b) focus group strengths

The focus group approach had the advantage of being a moderated discussion, thus giving the opportunity for greater explanation of the issues and examination of responses. Also, the

sample was a balance of people from the general population who, whilst being users of the landscape in general who were not 'close' to the project, thereby served to contextualise 'the vocal minority' or the opinions of the usually-researched groups of people.

For the mapping exercise, it was easier to explain what was meant by each cultural service and to ensure that that everyone was concentrating adequately. It was possible to ensure that people focused on services provided by the landscape (rather than leisure centres, for example) or to make them mark the landscape patch rather than just circling the name of a place. Equally, on the question of mapping within a specific boundary, there was more control over locations that were or were not part of the exercise.

There was also the ability to capture exactly where people were marking and why they consider that place to represent the cultural service chosen. This would be an important qualitative refinement of the method beyond the pilot. In reality, close involvement of the local practitioner would enable more accuracy and detail around the landscape in question (greater local knowledge etc).

For anything more diagnostic, such as seeing how people respond to different management actions and potential change, the focus group gives more detailed and rich information and insight than the on-site work. The moderator encourages people to think about the issue rather than putting them it in the 'too difficult box' or 'rejecting it outright'.

There is also the opportunity to explain complex issues, such as the history of land management and see which arguments improve acceptability of the scheme – or whether there is a need to adapt the plans to ensure cultural service provision is maintained or protected.

The discussion and debate during a focus group allowed the organiser to understand what current awareness levels are and what scale of reaction might be provoked by a scheme. In this way the practitioner is forewarned and armed with arguments that worked in the research thus helping with communication and PR strategy around launch and during transition phases.

c) focus group weaknesses

The downsides of any focus group approach clearly relates to cost – there are more set-up costs for recruitment, venues and using independent discussion moderators. This is particularly so given that it is important to hold more than one focus group to address a wide spread of the community.

Sometimes similar research is conducted by local managers or staff who are employed by wildlife partnerships. If, as in these cases, independent researchers are not used, there is a possibility of these practitioners 'steering' people towards their viewpoint. Recruitment of participants is difficult and requires professional help and, whilst some non-researchers may be able to run groups, they often then have difficulty analysing the results to develop an understanding of what is important amongst the 'noise' of the public feedback.

An often-mentioned downside of the focus group approach is that there are fewer people per group than at 'en masse' gatherings or survey. This often leads to a misunderstanding of the purpose of qualitative research amongst non-specialists because of the perceived small numbers concerned. The participants are often local residents, rather than regular users of the

site, which can also be an issue for the practitioners. This leads to a tendency to dismiss the public's viewpoint by saying 'they're wrong' rather than taking on board the implications.

The Community Event Approach

From a practical point of view, the community event was very successful. The number of people who came to the stand and the level of interest generated by the ideas and the tasks was notable. It was clear that visitors understood well what was required by way of the tasks, despite very little interaction with the study team.

As the maps set out in the previous chapter have shown, the ability to identify cultural-service delivery was widespread, in terms of the number of people who undertook these tasks, the number of localities and places identified and the range of cultural services experienced. The only exception was the 'poor quality' places at the wider Greensand Ridge scale.

Less evident was the public engagement with the econet task. Yes, there was a general level of support for the idea, but people did not provide a great deal of comment on the scheme, nor on the impacts that the scheme might have on their enjoyment of the area. As has been noted, this may have been because the scheme was on a small scale and generally uncontroversial. It may also have been because people had already seen the effect of other restoration schemes with the Park.

Other learning points from this exercise included:

- there was a problem with crowdedness of the stand, with too many people attending at times. Solutions might include
  - a larger, more extensive stand, with material repeated in different areas
  - better controls on 'entry' for visitors
- there was possibly too much information in terms of written material and maps
  - the species map was probably unnecessary (and might even have been both confusing and 'leading'), as was the map showing the Park before any restoration took place
  - although the need to convey the tasks and concepts was of paramount importance, simpler and less extensive wording might have been better
- there were too many map-based games
  - the third exercise should have been a simpler yes/no comment sheet, or similar
- on the cultural services maps there was a problem with the density of dots, particularly towards the end of the day when many people had played the games. The problem was partly because people were observed avoiding already-crowded areas of dots and also because there is a theoretical potential for group-think amongst participants (people following the lead of others). It was also difficult subsequently to analyse the overlaid dots. The solutions might include
  - maps that are refreshed, so that density doesn't become an issue
  - a touch-screen map that is clearable after every participant.

For a more general discussion about maps and the issues that arise, see later in this chapter.

Interviewing Face to Face

The survey was quite successful in addressing the two core aims. People were able to identify their special places (where the various cultural services were experienced) – and they were able to do this at two different scales, their immediate Country Park landscape and further afield within the Greensand Ridge.

The technique allowed for a more extensive appraisal of the econet proposal, particularly the ability to understand who they saw as being the beneficiaries of the scheme and the impact that the scheme might have on their appreciation of the landscape in question (as measured through their various cultural values).
The surveys have provided an important consumer analysis that could lead to management and design actions that incorporate consumer preferences, and can also direct land managers to publicity campaigns and capacity building to open ways to new thinking.

However, despite being a generally-successful approach, the survey did have some limitations. The first relates to the depth of information provided. As the comments shown in the earlier chapter reveal, the open-ended questions that sought to probe the potential impacts of the econet proposals on them and their families produced quite 'thin' outcomes – very little was said of any great depth or insight. The same is true of the question probing the changes to the proposals that they might like to see. Since a major purpose of any public perceptions econet research is to understand and incorporate people's attitudes on these topics, this might be considered to be an important weakness.

Other issues that arose, that might give pointers for refining the approach, were:

- the approach requires space and the opportunity to look at maps and other concept material that implies the use of a table or similar surface (which was why the in-home interview approach was initially proposed). However, on occasion, people were wary about letting our researchers into their homes and the interview had to be achieved whilst standing at their front door. This may just have been a wary community, but it is clear that the interview was very difficult to achieve whilst standing – a finding that confirms our view that on-street interviewing would be an unsuitable method unless carried out using tablet or smartphone technology (an issue that is discussed further in a later chapter)
- there were some observed differences in the ability to understand and respond to the concepts that were related to the respondent's age
  - younger people, for example, found it difficult to complete the tasks because their interaction with their local countryside can be much simpler and perhaps even unquestioning
  - older respondents, although more engaged with the landscape, did experience some practical difficulties with the research tasks. For example, the map of Rushmere Park was probably too small for them to be able to identify locations properly (about 11cm x 11 cm)
- not all concepts were understood well and so, despite the presence of reasonably-informed interviewers, respondents' comprehension levels did create a few problems. For example
  - the questions on 'other ecosystem services' were very difficult for most people and, despite very simple wording and concepts, most people had no idea what was being talked about. They did respond, but the interviewers thought that they might have been doing so mechanically, rather than meaningfully

- the concept of 'tranquillity' was not universally understood, which implies that even more simplification of concepts and wording may be needed to allow everyone (of all levels of intellect and education) to respond in a meaningful way.

Self-completion Interviewing

The more hands-off approach of a self-completion questionnaire delivered generally similar results to the face-to-face survey alternative – with the observed problems being somewhat more intense because of the absence of a 'helping hand'.

The greatest problem with this approach was, however, the extent of the response and the implications this had on the cost of the survey. During the course of this part of the fieldwork, many households were approached and people asked whether they would contribute to the survey. A total of 30 residents agreed and, from this total, just six returned their questionnaires – despite the incentive and despite several phone calls to chase up their response. A 20% response rate is not unusual for a self-completion survey but, in this case, it had the effect of making the survey cost uneconomic. The effective strike rate (measured by the number of returns, divided by the number of recruitment hours) was nearly 10% less than in the case of the face-to-face interview survey.

Maps

From the above descriptions, it may be noted that the use of maps (for research respondents to identify their special cultural-value places) worked very well – although to varying degrees, depending on the type and scale of the maps used in each case.

But there are some issues with the use of maps for gathering information and data in this way, which will be briefly explored here.

The first issues surround the limitations of a mapping approach. As has already been discussed earlier in this report, not everyone is conversant with the use of maps – they cannot necessarily identify specific localities on a map unless, perhaps, those localities are clearly labelled with terms/names that they would recognise or there is someone on hand to provide help (a more technological solution, using tablets that display maps and photographs, linked with GPS data might help here). Unfortunately, there is no simple way of identifying the issue with any specific individual beforehand – it appears to be unrelated to age or education, for example.

Another limitation concerns the scale and size of the maps used – and here there are some links to demographics. The maps have to be large enough to read, especially for those with reduced eyesight. Those used in the self-completion survey were of a particular problem in this respect – they needed to cover most of the area of the Greensand Ridge or Rushmere Park, but also had to fit within the printed page. The A4 size used with the interviewer-administered survey worked better, but was still far from ideal. In contrast, the maps used in the community event worked very well – but they were printed on A0-sized paper and reproduced at various scales.

The second issue regarding the use of maps concerns the information that they gather from the public. In particular, the sole use of maps to record cultural values may, of its own,

produce incomplete or even misleading outcomes. With the mapped information that was gathered at the community event, for example, it is impossible to determine what is driving or influencing people's perceptions. Supplementary information seems crucial to understand the full cultural-value picture, for example so that the sample information that has been gathered can be interpreted in the light of the potential causative factors.

It may also be important to collect information that would lead to an understanding of how people interpret the task – what they mean by 'inspiration'. For example whether this is related to creativity, such as the creation of art or photography, or is more an issue of a life-affirming experience, or what wildlife they value seeing or hearing.

9.3   Identifying Cultural Services

Introduction

The pilot research has clearly shown that, when asked, most ordinary members of the public are able to locate on a map the places that are special to them – that have a meaning to them that can be categorised into a 'cultural services' framework. They can do this for a range of cultural services, distinguishing between those places that provide opportunities for active use of the landscape (recreation), as well as more subtle, internal and contemplative uses such as feeling inspired.

People are also able to carry out this activity of cultural value mapping for landscapes that are at a range of scales – from the extensive landscape scale, such as a whole character area, to the very local scale, such as a country park. They can also do this at a variety of map scales. Whatever the extent of the area of landscape in question, people can identify many different places that they consider to be special – where, perhaps, they feel inspired, or have a sense of local history.

Taken all together, for a large group of people, the cultural-value mapping task produces a fascinating picture of the places within the landscape that produce cultural services. It is possible to quickly identify the hotspots of cultural-service delivery, which are special to many people and for many different reasons, as well as those areas that have less meaning to the public. This is, to the study team's knowledge, the first time that it has been shown possible to do this within a UK context. It is even possible to identify the places in the landscape that detract from enjoyment, that need to be improved – something that could be an important issue for future tourism studies.

But the successful mapping of cultural values in the course of the pilot has raised a series of questions about the nature of cultural services – and the public's experiences of them – that will be examined here. The questions have direct relevance to the EcoLaP project, in that they are important for the interpretation of any future research in an econet (or other landscape-change) context. They are also important, we believe, in terms of the wider and current debate about cultural services, especially to the issues of cultural-service measurement and quantification.

Locating Cultural Value

Each dot placed by the public on the 'cultural-value' map signifies a particular locality where that person has experienced a landscape benefit. Shaded areas may be less accurate, perhaps, but signify similar personal benefits. What is less certain from the pilot research is when the placement of an individual dot on the map, or the shading of an area, signifies somewhere specific and accurate and when it relates to a more general area. Do these cultural-value maps identify a specific spot, for example a particular view only visible from one point, or somewhere where cultural value is experienced more generally, such as a small bluebell glade within a wooded area, or even a wider locality such as a whole hill or extensive woodland? There is some evidence that certain cultural services are more found in specific locations, solitude for example, and others that are found more generally, such as recreation.

This is not just an issue of the scale of the map being used, as more detailed, smaller-scale, maps do not necessarily deliver greater accuracy – although shaded areas do have an inherent imprecision.

Unfortunately, the present pilot research is unable to answer these questions definitively. We do know from previous research, however, that benefits can be gained from all manner of landscape places. They may be driven by landscape features, by juxtapositions of features or by frames of view (amongst others). This implies that some cultural value experiences will be gained in accurately-defined places and others in broader localities. Furthermore, it is possible that people record their cultural-value localities in different ways, because they think of the landscape in different ways, or because they experience cultural services differently.

This issue is, of course, of greatest significance when it comes to interpreting these (or similarly-derived) research findings, particularly if the cultural-value maps are to be used in conjunction with other forms of mapping (such as wildlife species or habitat maps) for the development of an econet. Thankfully, species maps also have a degree of inherent fuzziness, because they are created from sightings of, for example, mammals or birdlife that are not necessarily restricted to a specific spot, but can roam over an area.

Nevertheless, some caution will be required in the interpretation of cultural-value maps, in recognition of the possible imprecision of the cultural-service localities so derived. The alternative would be to ask people, and record in some way, the precision of each cultural-value dot or shaded area. We will return to this issue later.

Drivers of Cultural Value

Although this pilot study has been able to locate people's special places, the research was less able to address the reasons why people feel they are special – other than recording the category of cultural service encountered (tranquillity, inspiration, etc)[79]. The two quantitative surveys attempted to ask why each place was special, but respondents' answers did not provide a great deal of insight, if any. The same issue is true of those areas that were seen to be in need of improvement.

Ideally, this is something that would be addressed in future research of a similar nature, as it is probably as important to understand what drives value as it is to understand where this

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[79] Although the focus group did provide an environment where probing could take place – for example to examine the relationship between beauty and topography.

value is experienced. It might also be linked to regional knowledge and stories about the landscape (holy trees, ghosts, castles, fame, fights and heroes, for example) together with the role of local storytellers. A later section of the report brings together this suggested improvement, along with various others.

Cultural Value Measurement

Whilst the pilot research has clearly shown that it is possible to produce maps of cultural values that are based on the perceptions of the public, there is a very important issue to understand – these are not maps that, in some way, measure the totality of cultural services within a landscape. Nor do they measure total cultural value – nor even represent a complete record of cultural-value locations.

It may be recalled that the maps have been developed by asking a sample of people to record their special places. It would not be possible to ask everyone who visits the areas covered by the maps – and it is also unlikely that everyone who was asked recorded their every special place within the confines of each map. So the maps represent the cultural values experienced both from a sample of people and in a sample of special places – making this study no different to any other that has examined public attitudes and perceptions.

What the maps do represent, we believe, is a record of a sample of cultural value locations, gathered by respondents (visitors and participants) who can be seen to be cultural service 'recorders' (somewhat akin to wildlife recorders). And the mapping techniques are dependent upon where the recorders like to go, where they have actually been and what they feel whilst they are there (although, of course, the importance of a place in terms of cultural-service delivery will, to some extent, influence the extent to which the public visits the place – the more 'attractive', the probable greater number of visits).

This analysis is best illustrated by considering the places marked on the maps with significant clusters of 'cultural-value' dots. A good example (drawn from the community event) concerns one of the areas in Rushmere Country Park that was earmarked for possible habitat restoration, as this extract from an earlier map shows.
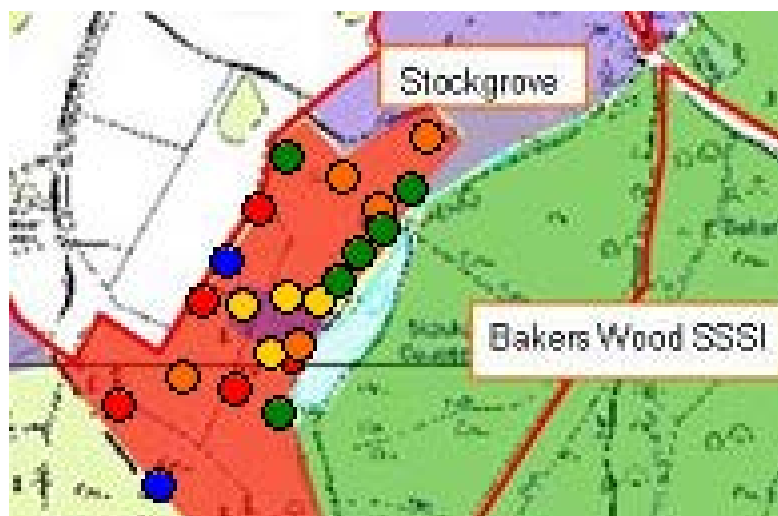
The restoration area to the west of the lake is clearly well visited and valued for a variety of reasons. So the intensity of experiences here is undoubtedly a function of both the usage of the area (i.e. the number of visits) and the presence of cultural-service opportunities. The landscape provides the opportunity for people to have experiences – and people (during their visits) have those experiences that are meaningful to them.

This assertion that the landscape provides the means, but that people create the cultural value, has further implications. Locations that are less visited, or less accessible, might produce results that seemingly indicate low cultural values. Conversely, high usage locations or those that are more accessible indicate intense cultural-value spots. Furthermore, it would be difficult to disentangle the interrelationship of high cultural services and high visit levels.

Clearly, this is an important issue since it flies in the face of an understanding that 'all landscapes matter' – even if only experienced by a lone person, no matter when experienced. It would be important to understand that a low density of cultural-value dots in an area would not imply an absence of human impacts from an econet scheme. It would, however, be fair to say that the discovery of a high intensity of cultural values in an area would be an indication of a considerable potential for human impacts, so such areas would form a useful early-warning indicator for econet designers – they could suggest the possibility of a public outcry about an econet scheme, depending upon the intensity of the impacts and the attitudes towards the wildlife in question.

It is possible to take this argument further when considering the 'white spaces' of the cultural-service maps. On the face of it, they suggest areas that have no cultural services, although it's impossible to determine whether this is the case, or whether they are the result merely of an absence of visits (or a failure in the survey design that results in a poor rate of intercepting the public). Since this is a study about perceptions, there must be a recipient of the cultural service for cultural value to be experienced. Theoretically, the absence could also indicate areas of negative cultural services – i.e., disbenefits (see later).

To some extent the issues raised here are ones for developing further in any future cultural-value mapping studies. It should, for example, be possible to control for visit numbers, in the same way that sample surveys of visitors do more generally, or to express the results in relative terms, rather than absolute numbers. It should also be possible to address both positive and negative experiences equally (examining both beauty and ugliness, for example, or both the inspirational and boring).

Negative Cultural Experiences

Previous studies have shown that not all cultural experiences are positive ones. For example, some people feel a sense of threat in dense woodland, particularly if it is a coniferous wood. Others are frightened of moorland landscapes, or find them too bleak and uninviting. Even featureless agricultural landscapes can be considered monotonous and uninspiring.

The pilot research sought, albeit in a fairly limited way, to capture these negative experiences and to identify where they are generated. The purpose was partly to explore whether people can respond to questions about the negative as well as the positive and partly to identify, for the benefit of the Greensand Trust, those landscape areas where remedial action might be necessary.

The findings suggest that scale could be an important factor, since no-one identified poor-quality landscapes when asked to consider the Greensand Ridge in its totality – but several located areas within the smaller-scale Rushmere Country Park, with almost all people identifying the same particular small area of landscape within the park. Unfortunately, the technique that gathered this latter information did not include any probing that might help understand the reasons why.

It is also important to note that any research conducted within a landscape might result in a self-selected sample – people tend not to go to areas they dislike, where they experience negative feelings. It may therefore be difficult to identify negative cultural experiences from on-site research.

Clearly, it would be unwise to draw too many conclusions from these findings, given the limited information available, but there is a hint from the pilot research that suggests that negative cultural experiences could be an important topic for future landscape studies.

Identifying Cultural Experiences

As the pilot results have earlier shown, people are able to identify distant locations that they consider to be special. They have no doubt been there in the past, but are not necessarily there when the research is undertaken – their sometime presence is a requirement, but not necessarily their *active* presence. So this is not something that is related to 'existence values', as at least one visit has been made in the past, from which they are drawing their perceptions, rather than being a wholly theoretical or mental construct.

Another issue here concerns the intensity of experience. The mapping approach used in the pilot research assumes that all experiences are equal – that person A and person B (who have both marked the map with a particular-coloured dot) have been, say, 'inspired' to the same degree. The implication is that all people have a similar intensity of experience and, when they feel that experience, they do so to the same degree in all locations that are relevant to them. From simple experience, this is an unlikely implication – we probably all have places that deliver intense highs and those where the experiences are similar but more muted. In an ideal world there would be some means for identifying the intensity of the experience as well as its location during public perceptions research. This could be an important issue to take into consideration in those cases where a small number of people are affected greatly by a landscape change, for example. Whether GIS mapping could do this is discussed later.

One final issue here relates to double counting. Some concerns have been expressed that any technique that uses the perceptions of people and the places that they find special would necessarily lead to double counting. This is because any place that delivers a person both recreation and solitude (for example) has twice the impact, even though the experiences relates to the same one person. However, the possibility of double counting cultural values might be thought little different to the possibility that exists with recording of wildlife species and, as has already been discussed, the sampling effect of both are very similar.

Other Ecosystem Services

The pilot research tried to uncover the public's perceptions of other ecosystem services, such as flood alleviation and carbon sequestration. It would be reasonable to say that the outcome was not a great success. The topics were, for example, impossible to explore in the focus groups – a finding that supports previous focus-group research carried out by the study team in a different context.

Whilst there did appear to be some understanding of the concepts in the quantitative surveys, as well as some capability of locating the benefits on a map, the oddly-placed dots suggest that, even here, people were possibly misunderstanding the task – or understanding, but only at a very simple level (such as where they get fresh air, or where there have been floods in the past).

The study team appreciates the rationale for attempting to address this particular research topic but would suggest that the concepts are too complex for most people to grasp at a level that is sufficient for them to respond meaningfully – at least, within a context that is already as complex as an ecological network. If this is an area of importance, then in-depth research dedicated to the topic (and using a more deliberative approach) would be recommended (see later).

9.4   Public Appraisal of an Econet

Econet Concepts

If significant success in furthering an understanding of how to research cultural services was achieved during the pilot study, the outcomes of the research in terms of econet development were perhaps not so enlightening. This is perhaps because (as has been noted earlier) the example econet chosen for the pilot was a quite simple one and involved quite minor – and visually unchallenging – habitat restoration. It was also a scheme that lacked any really controversial elements, other than the thinning of woodland (removal of trees).

Nevertheless, the pilot and the earlier focus group carried out in Cheshire did reveal that people could understand and respond to the basic aims and concepts of an econet. They do not necessarily readily understand all econet concepts and those they do can be understood in a very simple way. The implication here is that any future research might need to couch the econet idea in ultra-simple terms, using easily understood language. There is also a high requirement for information.

If people can understand at a basic level what an econet is for, the pilot findings suggest that only some people are able to appraise a particular econet scheme and its impact on wildlife and the landscape. Many do not feel sufficiently informed about the science, so many feel unable to judge the suitability of the proposals and overtly say that they rely upon the experts to do the 'right thing'. This is not a universal finding, however, and some people do have opinions on the econet scheme and feel able to question the rationale and the specific plans – in terms of both the habitats gained and those lost, for example. This can be an argument for outreach and capacity building: the dynamics of land use change, fragmentation and climate change ask for new approaches that go beyond conserving SSSIs towards a more dynamic vision on landscapes, so could be part of biology/geography education and general information.

There is a hint here, therefore, that engagement of public opinion in an econet proposal will generate more useful information about the landscape impacts – and the associated cultural impacts – than it will about the ecology of the scheme and its impacts on habitats and wildlife.

Appreciation of Wildlife

If not everyone is interested in wildlife aspects of an econet, or feels able to judge the econet impacts upon wildlife, it is more generally true from this pilot research that wildlife can be perceived in very simplistic (and occasionally even wayward) terms by the public.

For example, the interviews with landscape and ecology professionals brought up the public's focus on species that are not viewed positively by professionals (squirrels, in particular) – observation of the participants in the community event also showed a degree of personal prejudice creeping in amongst some participants (an aversion to snakes and lizards, for example). Another example concerns the identification of wildlife cultural benefits in the community event mapping game – where the maps suggest benefits clustered around the Stockgrove Lake, which is home to a variety of species of duck, including mandarin. Other areas, where wildlife might be more elusive, were less well marked by people.

It is true that these complexities are not evident amongst everyone, since the opportunities to see and hear bird life, especially if rare or locally important, were highly valued by other people. Flowers and ferns could also contribute significantly to the setting of a favoured landscape place.

But the issue of wildlife perceptions goes to the heart of research into public perceptions of econets, and associated cultural services[80]. It is not known why people focus on particular (and generally more visible) species and have low awareness and consideration of others. Whether it is a result of the general paucity of wildlife, or the fleeting nature of visibility, or low understanding and awareness, public perception econet research might struggle to capture meaningful information.

This is perhaps another area for future research – research and advice on the public perceptions of wildlife and how their understanding can be enhanced.

9.5   Proposals for Refining the Methodology

Introduction

In an ideal scenario, public perception research into a future econet proposal would identify, from a range of landscape users:

- precisely where they gain cultural value within the landscape in question
- which cultural values are experienced and to what degree
- the drivers for these experiences
- any negative experiences (and the reasons why).

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[80] But is no less important in other landscape-change contexts too

The research would also explore people's reactions to the landscape changes associated with the econet proposals and the potential impacts of these changes upon their cultural experiences of the landscape in question. It would, further, test the acceptability of the proposals in the light of the habitat and wildlife objectives of the econet proposals.

The earlier section of this chapter has identified the extent to which the methods used in the pilot were able to meet the requirements of this ideal scenario. But it is clear that refinements are needed – these are explored below.

A Refined Methodology

We would suggest that the ultimate methodology requires a combination of quantified results with a significant depth of understanding that is unlikely to be captured using any form of quantitative research. This probably implies using a combination of mapping exercises with quantified information gathering, together with in-depth discussion and probing.

The mapping exercises would need to be carried out with a good representative sample of users – which implies an in-home face-to-face interview survey or research in a location where adequate numbers of users congregate (such as a community event). A visitor survey might be appropriate too, but would need to be carried out in an environment where people could be informed (with maps etc), could react to information and carry out the mapping tasks – an environment such as a visitor centre, or on-site portable office, gazebo or marquee would be required. Simple face-to-face interviewing (standing in a visitor car park, for example) would not work. An in-home face-to-face interview survey would also require the use of large (but portable) maps, not the small ones used in the pilot survey.

For the in-depth discussion and probing, the ideal requirement (to ensure independence) would be for professionally-conducted focus groups or in-depth interviews. The latter could be an extension of the mapping task, or undertaken separately.

A suitable research environment is also very important for these in-depth qualitative techniques. Focus groups can be held in local community venues or in-depth interviews can be held in people's homes (or in the more portable locations mentioned above).

Refined Research Content

The content of the research could be greatly simplified. Whilst it was interesting to understand where cultural services are delivered across a large landscape area, this is not necessary for the purposes of a proposed econet. It would be sufficient to carry out just one cultural-service mapping task – to cover the precise landscape in question (although separately for each of the positive cultural services of interest, as well as for cultural disbenefits).

It is suggested that this core task could be supplemented in two ways:

- with in-depth discussion to examine the driving factors of cultural value, as well as such issues of intensity of experience (we do not yet see how this could be mapped – although see the later section on potential technological solutions)
- with a questionnaire that would address such issues as people's satisfaction with the landscape .

Potential Technological Solutions

It has been suggested that GIS mapping could answer some of the problems experienced with the manual approach used in the pilot research. GIS mapping could not only allow respondents to identify the locations where they derive cultural values, but also capture some of their comments about driving factors, or possibly even their intensity of experience.

There has not been the opportunity to address the opportunities offered by GIS through the (limited) pilot, so this is an area where further study might be required. There are, however, some important hurdles to overcome, including:

- pinpointing multiple personal cultural values on maps
- designating a description of accuracy or fuzziness (pinpoint or area)
- a description of cultural value intensity
- a facility to capture rationales and influences
- (ideally) a facility to upload photographs
- in-built social survey capabilities (questionnaire).

Gaps in Information

Embedded within the discussion outlined in this report is a philosophy that the perceptions of the public and their cultural values concerning the design and implementation of econets are best addressed through primary research.

This itself raises a series of questions that recognise that it may not be possible, for whatever practical reasons, to conduct primary research – either at all, or in sufficient depth so as to cover an entire geographically-extensive econet area.

One of these questions concerns gaps in information. What might be achieved where perceptions of the public are incomplete, or absent, recognising for example that there may be limits to the extent of any research, in terms of sample-sizes or budgets?

One answer might be to identify supplementary approaches that might, for example, fill any gaps in research data with a spatial representation of cultural services. There are some limited examples in the literature that suggest a relationship between cultural services and landscape features that might, in theory, be used to fill these gaps in data, although the available information is highly qualitative and gathered in contexts other than landscape or habitat change.

Another answer would be to restrict the extent of the research, by focussing effort solely on the core areas within the econet where potentially-contentious changes are planned. However, this itself suggests that the econet designers have enough information (and awareness) to identify potential conflicts. Yet another possibility would be to restrict the research publics to those with a direct involvement in those areas, focussing wholly on high-end users for example.

Of course, over time, some form of benefits-transfer methodology could be used as the findings that relate to one area may, in any event, be directly applicable in others (general findings about birdsong, for example). And, over time, the generic information gathered from econet-design cultural research would build into a database of people's opinions, attitudes and experiences that will have wider validity and applicability in other econet areas.

More proposals for future research and guidance to carry out studies on the public perception and cultural values of econet are offered in the next chapter.

10. Future Advice

10.1 Introduction

This chapter attempts to provide some preliminary advice for developing a coherent approach to the design and planning of econets with cultural services in mind. The chapter is divided into the key topics addressed in the EcoLaP project and specific recommendations to Natural England are presented at the end of the chapter.

10.2 People's Attitudes

When working with people we need to consider their socio-cultural-ecological context. As an example, people easily recognise the value of places close to their personal environment, and struggle to recognise those further away, or those linked to public (rather than private) utility. There is a continuum, from the most to the least recognisable value, which can be seen to be:

- well known places of everyday use
- intimate places, but less well-used or thought about
- public character places that have local identity or an educational meaning
- key environmental spots and ecosystems
- places that provide environmental protection and public safety.

As we have seen earlier in this report, this continuum is important to the design of research to gather people's perceptions, but it also suggests that any messages conveyed to local people about public environmental and ecological value, as well as preservation and conservation, are still weak and that more work might be required to enhance public understanding of these issues. In this latter context, it might be useful to consider developing environmental programmes – including education and activities – with a number of audiences (including young, elderly or disadvantaged people). Such programmes can help people to recognise and understand the least appreciated services of landscape, both culturally and ecologically. The aim would be to re-establish their links with nature and consequently raise awareness for the preservation of cultural and natural values in their environment.

10.3 Cultural Services

Awareness-raising has important implications for the measurement of cultural services provided by landscape and ecological networks. There is a need to support greater local knowledge of the landscape and of econets – and the way that they are able to supply a combination of natural and cultural services. One way of achieving this might be to run workshops with local people for:

- understanding their present levels of awareness
- conveying information and insights regarding their landscape (and any local econets) in the past, present and future
- debating the provision of natural and cultural services
- discussing possible options for the safeguarding of such services.

To run this type of workshop, trained researchers would be preferable to local managers or wildlife partnership staff in order to provide the necessary independence. It would also be necessary to use popular terminology and uncomplicated language, as well as supporting material (such as ad-hoc maps, prepared for the event).

Another opportunity would be to run community events. The EcoLaP study pilot proved to be very successful because it encouraged active engagement through the tasks of marking maps. The potential of this method is immense, but it does require further refinement in the quantification of public input and in terms of digitisation. The use of tablets and smart phones, or even a laptop and digital projection, should be explored further to facilitate the separation of public feedback into layers and to increase the accuracy and complexity of the information to be gathered.

Other more conventional opportunities used in the pilot, such as face-to-face or self-completion interview surveys, can be employed but there is a need (discussed earlier in this report) to improve the methodology.

10.4   Mapping & Assessing Cultural Services

The difficulty of recording cultural services on maps, and the possibility of producing incomplete or misleading outcomes about them, is well known. Although not impossible, it is difficult and time-consuming to accurately verify what influences people's perceptions, as well as how they interpret their mapping task, because of the strong subjective and personal frameworks involved. A more detailed explanation of the use of maps and a discussion of the outcomes from this project has been provided in the previous chapter, but some advice is set out here.

Cultural services are easier to identify in places that are special to people, from both an exterior perspective (i.e. the places that people use) and an interior one (i.e. the feelings that they have). Cultural-value mapping can, as has been shown in this study, locate these special places, but there is a significant task in assessing cultural services. It is possible to use the landscape that creates these cultural services as a framework – identifying both hot-spots and less meaningful areas, together with a variety of intermediate values in the preference scale. However, special places are linked to personal experiences and so the cultural services to be assessed can only be done so from a subjective perspective. It should also be recalled that a landscape experience is not always just a positive one – landscapes can provide beneficial cultural services to people, but also negative ones, that induce people to dislike the landscape context concerned.

One possibility lies in the use of interactive tools to gather data about cultural services and public perceptions. One example approach is interactive GIS, where participants shape their own landscapes using predefined habitat types, and where different scales can be introduced. It might also be possible to develop a smartphone or tablet app that would enable people to both receive information about locations that they are in, and to contribute their own knowledge and feelings about these localities. Such an app could even assist the community-oriented development and use of econets. The results could then be analysed and clustered with social, economic and cultural preference data (ESRI and ArcGIS Online are excellent tools already available on the cloud for such purposes, with the resultant data being processed using a web-based server with a simple interface).

As the pilot study has shown, it is important to understand what drives cultural values of landscape, as well as where these values are experienced. Personal experience is important here, but there is also a link to regional and traditional knowledge. Further topics that might require research here include: narrative about ancient woodlands; traditional land uses and cultural landscapes (enhanced by stories of local spiritual leaders and storytellers about sacred sites and trees); local significant architecture, heroes and heritage.

Hence, future studies on cultural values and the public's perceptions of econets might usefully address:

- where people identify the cultural values of landscape (and econets within landscape)
- which cultural values are experienced and to what degree
- individual and collective experience
- the drivers for these experiences
- positive and negative experiences and the reasons for these
- personal, regional and traditional knowledge.

10.5 Landscape vs Econet

In contrast to landscapes, there is less evidence of public engagement with the concept of econets. Although such concepts can be understood – and the local population can generally support the idea – econets are still not a priority public issue. Engagement with people is undoubtedly fundamental in this case, with previous studies showing that one-to-one engagement is generally more successful. On the one hand such engagement enables locals to identify their special places and to understand the different cultural values that econets can deliver; on the other hand it helps a deeper understanding of people's attitude toward econets.

Further use of consumer analysis could also be useful to develop this understanding – studying, for example, the management and design of econets in terms of consumer preferences, or planning publicity campaigns for land managers and stakeholders, or organising activities for capacity building to open ways to new thinking. Society is moving fast, and so is technology (with telecommunication companies driving society to new ways of looking, for example). As econets are a new way of thinking, they also need promotion and explanation. And they need governments and policy makers to apply the new theories advanced in the sector.

In order to raise awareness of the econet concept among people, it might be useful to:

- engage with people
- use a simple understandable language
- identify hot-spots for the econet and other special places in the community
- recreate econets connections, both in their ecological and cultural settings
- provide research and advice on public perception of wildlife.

Landscape provides the means, people create the values. Likewise econets provide the ecological setting, people recreate the lost connections.

Relevant lost connections to take into account in the future of econet research are cultural as well as ecological. Europe and the UK are different from other areas like the USA (where people generally have good connections with their greenways) in that the link between people and their local ecological networks (or even green corridors) is still weak. This might be due to a low level of understanding of the concept, in turn due to little information conveyed about it, or to an inability to grasp the benefits that an econet can offer to habitats and people alike. There is a need, consequently, to improve outreach and capacity building. The dynamics of land-use change, of fragmentation and climate change, ask for new approaches that go beyond conserving the core areas of an econet, towards a more dynamic vision of the wider landscape. Education and information have a key role to achieve this important task.

There is little doubt that the public engaged in this study could appreciate that an econet will help preserve habitats and wildlife. But it has not been possible to prove in this study that the community can appreciate that econets can produce ecosystem service benefits as well as cultural service ones. In addition, wildlife perceptions, as well as the attitudes of people towards different or preferred species, is another crucial area to explore in terms of the cultural services that an econet can provide.

Yet, new nature asks for new visions. The movement of species, for example, cannot be stopped nor changed in direction. Emerging issues in the new nature require insight and awareness of the general public. These should help to understand the role of species in ecosystems, and the role of mankind to manage them. Research on the public perceptions of wildlife, and advice on awareness-raising and on enhancing understanding, should be developed further.

10.6   Research Directions

When research is used in the future to examine cultural values and public perceptions of econets, we would suggest that the following are employed (together or in isolation):

- a methodology which combines quantitative and qualitative research
- mapping exercises
- interactive tools (interactive GIS and maps, satellite GPS, tablets or smartphones)
- online tools (Google map/earth, ESRI, ArcGIS Online)
- dedicated server (web-based interface, database, wiki)
- face-to-face interviews with local residents, visitor surveys and other questionnaires for data gathering
- community events for dissemination, raising awareness and capacity building
- workshops for in-depth discussion with local residents
- participatory econet design with both experts and citizens
- engagement of all actors for inclusive interdisciplinary econet planning.

In terms of research content, the focus should be on the econet, with landscape being used as the means to gather information on the cultural values that the studied econet can offer to the public.

In most cases, primary research should be employed to address perceptions of the public and their cultural values concerning the design and implementation of econets. But primary

research can have limitations (due to practical reasons) which also need to be considered, for example when gaps in information exist regarding public perceptions, or when there are constraints to research budgets. In these cases, alternative approaches could be utilised to identify any missing research data (e.g. with a spatial representation of cultural services, or with a restriction of the research focus).

In the longer term, the data gathered from previous research on the cultural values of econets would build into a database of people's opinions, attitudes and experiences that will have wider validity and applicability in other econet areas.
Lastly, econet designers should develop new information systems which are user-friendly, technologically advanced and holistic, as large parts of the econets will have multiple functions: for ecology, the economy and last – but not least – for society.

10.7   Participatory Econet Design

The findings of the interviews with landscape and ecology professionals identified three sets of impediments: a generally static approach to mapping wildlife, lacking the dynamic interaction of species and their habitats; a bias towards the tangible and spatial elements of an econet; and, finally, limited understanding of cultural services. These shortcomings might be addressed by:

- engaging designers and local stakeholders in focus groups and research during workshops, community events or other appropriate means
- using interactive GIS and e-tools to engage local people
- planning for interdisciplinary design that include ecologists, social scientists, landscape planners/designers and administrators.

One solution might be some form of participatory quantitative method that enables respondents to appraise the options according to their cultural and aesthetic preferences. The use of a design 'charrette'[81] in the course of a brainstorming session might also be appropriate. The former would aim to gauge local community appreciation and cultural valuation of local landscapes as first step to landscape planning; the latter would be ideal to explore specific problems concerning changes to the landscape.

Visualisation and scenario planning might be employed later in the process. Scenario planning has proved to be a successful participatory method for planning landscape changes. The digital visualisation of the scenarios (through simple software such as Photoshop and Illustrator) serves as a platform for debating landscape change, and for interdisciplinary dialogue.

10.8   Proposals for Further Research

The pilot research conducted during this study was necessarily limited in scope, time and budget. A more extensive testing of the refined methodology would be required before definitive advice could be provided about the application of social research methods in the context of econet design and implementation. In particular, there is a need for a second, more in-depth, pilot case study, within the context of a larger-scale or more complex econet.

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[81] An intense period of design or planning activity

In addition, a number of topics outside the scope of the present study would merit further study in order to considerably improve understanding. These topics have been divided into three groups:

- problematic areas identified in the pilot and opportunities to overcome them
- the views of landscape/ecology professionals for evaluating the results of the pilot
- practical barriers to wider econet development.

The first group of topics are related to some of the problem areas identified in the pilot and the opportunities that might exist for overcoming these. They include:

- further research into the public perceptions of wildlife
- dedicated research to examine public perceptions of ecosystem services
- development of a digital mapping system.

Research into the public perceptions of wildlife will help to determine whether the cultural value of wildlife can be built into econet design, or whether the topic is too impenetrable for most people to form a useful input. In any event, further explanation, information-exchange and mutual capacity-building is required for a sound investigation of this topic.

Moreover, research to examine public perceptions of ecosystem services has, so far, only been addressed as a minor part of studies that have another primary focus, to the extent that (as we have seen) they are often beyond the comprehension of ordinary people. Any dedicated research in this area would have the aim of definitively addressing the degree of people's understanding and whether, and how, this could be enhanced.

The second area of possible research lies in the evaluation of the results of the pilot study through the eyes of landscape and ecology professionals. Although theoretical requirements and initial reactions to public perception research have been made available in this study report, the aim of additional work would be to gather the reactions and the viewpoint of these professionals to the practical tools developed during the course of the study – as well as to the findings produced. Furthermore, their views on the impact and consequences of these findings could be explored, not only from their own professional point of view, but also from the viewpoint of their clients. This is now a possibility since this study has identified the scale and scope of what research can produce.

The third group of topics concerns the practical and policy barriers that exist to the wider development of econets – the resistances that became evident during the interviews with landscape and ecology professionals. The specific suggestion is for research with landowners, to identify the barriers and opportunities to the adoption of econets in England, and their role in this process. In addition, it might be useful to investigate the mechanisms of existing management organisations, and their capacity, willingness or reluctance to change because of vested interests. Finally, a more in-depth analysis of the opportunities and resistances to applying a cultural services approach to landscape planning and econet development is required.

10.9   Specific Recommendations

As may be deduced from the above, the EcoLaP study team strongly recommends, and hopes, that further research would be conducted on econets and cultural services. Yet, the team would also advise Natural England to continue their efforts initiated with this pioneer project and look into affordable solutions for the development of econets and associated cultural services in the immediate future. A coherent approach is believed necessary to achieve this.

The development of a coherent approach to any environmental connection (whether it is an econet, green infrastructure, an ecological corridor or a greenway) requires a joint effort among the parties involved. Past attempts have shown that developments made by governments and authorities alone do not succeed. On the contrary, a joint approach between governmental, academic and practitioner institutions creates the necessary synergies for success. Such joint approaches support wider circulation of knowledge, as well as common efforts in data gathering, community involvement and awareness raising. This sustains, in turn, a stronger cooperation that is able to produce an econet design and plan which will be sustainable in the future, embedded in the administrations involved, and accepted by the local population. In doing do, capacity building is reinforced, and the financial load for all involved gets lighter.

To this end, a few steps are suggested to Natural England:

- an initiative to pioneer the development of econet and cultural services
- a steering group to guide the initiative across the country
- a technical group to develop approach and tools
- regional and local groups to implement the econet plans.

10.10 Best Practices

Best practice could help to target the new initiatives proposed above. Observations of which methods worked best, based on the insights and experiences of the EcoLaP study team, are as follows:

- identifying the range of socio-cultural services present, or potentially present, in the proposed econet area
- ascertaining the extent to which the public is aware of these services and can identify them
- getting information from the general public and selected specialist publics
- ascertaining awareness of the proposed econet, and perceptions of its strengths and weaknesses
- producing mappable information about the existing distribution of socio-cultural services, and about the potential distribution of specific services as a result of proposed future econet features
- engaging with stakeholders in the implementation of cultural services.

It is nevertheless important to keep in mind that there is no one 'right' econet design. A strictly 'scientific' approach might produce a spatial blueprint that could not necessarily be implemented directly because of the preferences and attitudes of stakeholders. The implementation of an econet in the framework of cultural services requires a flexible approach, able to identify the possibilities offered by both local ecosystems and local

communities. Hence what is required is the most effective approach, where human values are included in a design that has been previously debated with various publics. Similarly, long-term support, maintenance and management of the econet will have to be considered in both ecological and human frameworks, as it will also depend on buy-in from the various members of the public.

11.   Study Conclusions

The EcoLaP study has shown a strong rationale for incorporating cultural values and the associated perspective of the public in the design and planning of ecological networks. A policy framework that supports the use of cultural values in nature conservation and landscape ecology is already in place, although more recognised at a global rather than a national level. But only a few econets have, to date, incorporated cultural values into their developments, although proxy measures are being used in some cases. The current NIAs in England are examples to consider, at least for evaluating the effectiveness of cultural values into econets, rather than in the design of such structures.

The integration of cultural values in nature conservation is essential in a general sense, as well as more specifically in the design of a more sustainable future that supports both species conservation and people's use, within the context of a changing environment. This is why such future design should include cultural values and should provide cultural services as well.

However, it may be recalled that there is rarely one 'right' design for an econet. A spatial proposal for an econet could be drawn up, but a number of others would be possible and probably equally effective. What stakeholders accept may well be as viable as what the ecological designers originally propose.

In addition, there is no assurance that ecological connections are the right answer to nature conservation. Invasive, alien and unhealthy species that move between econet spots can carry diseases or be fatal for other endemic species. Therefore, in designing econets, the art of the 'possible' (i.e. a negotiated, feasible, implementable design) may be as successful as one that is computer-aided and theoretical.

Another key factor, essential for the future of econet development, lies in the integration of nature with landscape. Species and their movement are not restricted to nature reserves, and ecosystem services are clearly present in the landscape. Yet cultural values are an integral part of landscape, and cultural services are delivered by the landscape itself. Therefore, a landscape framework is crucial for the incorporation of cultural values into econet design and planning.

This, in turn, can assist in understanding particular issues such as the requirements of the public for nature. It can further support the development of a partnership between planners, local authority officers and local stakeholders, allowing consideration of public expectations from a newly-designed landscape and econet. Local groups could address problems that need to be solved, such as which cultural and other landscape services to improve, where conflicts need to be resolved, and which needs should be satisfied. It can also reinforce a sense of place, in term of belonging, memories, meanings, relationships and networks (in a wider sense).

In conclusion, the EcoLaP study has evidenced current gaps in econet design and implementation and especially in the consideration of people in these contexts. Their perceptions and cultural values are clearly a key for the successful implementation of econets.

It is therefore crucial to develop further studies of this type in order to find the best ways for the desired integration of cultural services, and of public perceptions, into econet design and planning.

The study team would also encourage a continuation of the efforts initiated with this pioneering project, particularly to develop affordable solutions for the immediate future development of econets and the role that cultural services can play. A dedicate initiative and a coherent approach are necessary to achieve this.

Parallel to these, it is essential to work on activities concerning environmental education and dissemination to raise awareness of this topic and to pass this heritage to future generations, since they are the stakeholders for cultural services preservation.

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