CRANFIELD UNIVERSITY

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PEOPLE IN NATURE AND NATURE IN PEOPLE:

A CONSTRUCTIVIST EXPLORATION OF ECOSYSTEM CULTURAL SERVICES

PhD Thesis

Academic Year 2011 – 2012

Supervised by Dr. Paul Burgess

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ABSTRACT

The ecosystem services approach is a set of institutional practices which aim to improve natural resource management and policy making, by highlighting the relationship between well-functioning ecosystems and human wellbeing. Within the approach, *cultural services* (CS) signify the psycho-social aspects of people-nature interrelations. This concept is an understudied area, and is recognised to exhibit high levels of complexity which make it difficult to evaluate. This thesis deconstructs, explores, clarifies and enhances the CS concept. A flexible, phased research design explores cultural services in relation to a specific case-study site, 'Aspley Woods and Heaths' (England). Cultural services are examined through a series of lenses: as an interdisciplinary construct, as an experience of place, as context, as a resource regime, as a discursive resource and as a personal discourse. Mixed qualitative methods identify how CS is constructed through action, speech and text; via an in depth analysis of primary data from semi-structured visitor and expert interviews, unstructured key informant interviews, and marginal participant observation. Additional data informs the enquiry, from a discourse analysis of key study site documents, and a review of site-related historic, ecological, land management, and policy documents. Results from this thesis subsequently challenge the current published definition and subcategorisation of cultural services. The notion that cultural services are *nonmaterial* is disputed due to the centrality of physical activities, physical sensations, and access management regimes which require material inputs. The *benefits* premise is challenged since CS experiences included references to anxiety, injury and conflict. The notion that CS are *obtained* is disputed due to the reciprocal nature of information exchange between people and features of the environment. The idea that CS are solely *from ecosystems* is challenged due to the part played by interpretative socio-cultural contexts, and natural and social processes which occur outside site boundaries and specified time frames. Instead, this thesis recommends that cultural services be redefined as the ways that humans use discourse to construct and communicate perceptions of nature. CS arise from processes of interaction (activities) and reciprocal information exchange (information functions) with ecosystems. CS subcategories are hence a series of cognitive, retrospective, intuitive, creative, communicative and regenerative interpretative repertoires, which form the basis of social practices such as designation, restoration and policy. The propensity of environments to *embody* discourse is concluded to be crucial in defining what is valuable about natural ecosystems, and how these contribute to wellbeing.

Keywords: social, psychological, qualitative, discourse, environment, wellbeing

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This PhD thesis is dedicated to my wonderful children Amiel and Ella-Rose, my brightest inspiration.

I hope you all like the thesis.

Oh nature ! Woods, winds, music, vallies, hills,
And gushing brooks, in you there is a voice
Of potency, an utterance which instils
Light, life, and freshness, bidding Man rejoice
As with a spirit's transport : from the noise,
The hum of busy towns, to you I fly;
Ye were my earliest nurses, my first choice,
Let me not idly hope nor vainly sigh;
Whisper once more of peace- joys- years long vanished by !

Excerpt from 'Aspley Wood' by J.H. Wiffen, 1820

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LIST OF ABBREVIATIONS

AA	Access Agreement
ASNW	Ancient Semi-Natural Woodland
BAP	Biodiversity Action Plan
BLARS	Bedfordshire and Luton Archives and Records Services
BNS	Biological Notification Site
CP	Country Park
CROW	Countryside and Rights of Way Act 2000
CS	Cultural Services
CWS	Country Wildlife Site
DCLG	Department for Communities and Local Government
DEFRA	Department for Environment, Food and Rural Affairs
DJ	Disc Jockey
ES	Ecological Survey
EsA	Ecosystem Services Approach
FC	Forestry Commission
FDA	Foucauldian Discourse Analysis
FP	Forestry Plan
GDP	Gross Domestic Product
GI	Green Infrastructure
GIS	Geographical Information Systems
GT	Greensand Trust
HER	Historic Environment Record
H-SDM	Human-Scale Development Matrix
IF/CS	Information Function/ Cultural Services
IW	Information Webpage
LCA	Landscape Character Assessment
LDF	Local Development Framework
LNR	Local Nature Reserve
MA	Millennium Ecosystem Assessment
MK	Milton Keynes

NGO	Non-Government Organisation
NNR	National Nature Reserve
ODPM	Office of the Deputy Prime Minister
OS	Ordnance Survey
P3	Parish Paths Partnership
PG	Play Ground
PROW	Public Right of Way
PS	Parish Survey
SAM	Scheduled Ancient Monument
SESDA	South-East Strategic Development Area
SP	Sand Pit
SSSI	Site of Special Scientific Interest
TEV	Total Economic Value
UKNEA	UK National Ecosystem Assessment
WHO	World Health Organisation
WWI	World War One
WWII	World War Two

1 Introduction

This thesis explores a phenomena termed by the Millennium Ecosystem Assessment the cultural services of ecosystems (MA, 2005). The Millennium Ecosystem Assessment (MA) was initiated by the United Nations in 2001 in response to concerns from numerous biodiversity conventions over the rapid and extensive global depletion of natural resources. The implications of potential nonlinear ecosystem change for future generations prompted an international response, and resulted in a framework which sought to encapsulate the fundamental importance of biodiversity for human wellbeing (Figure 1:1).

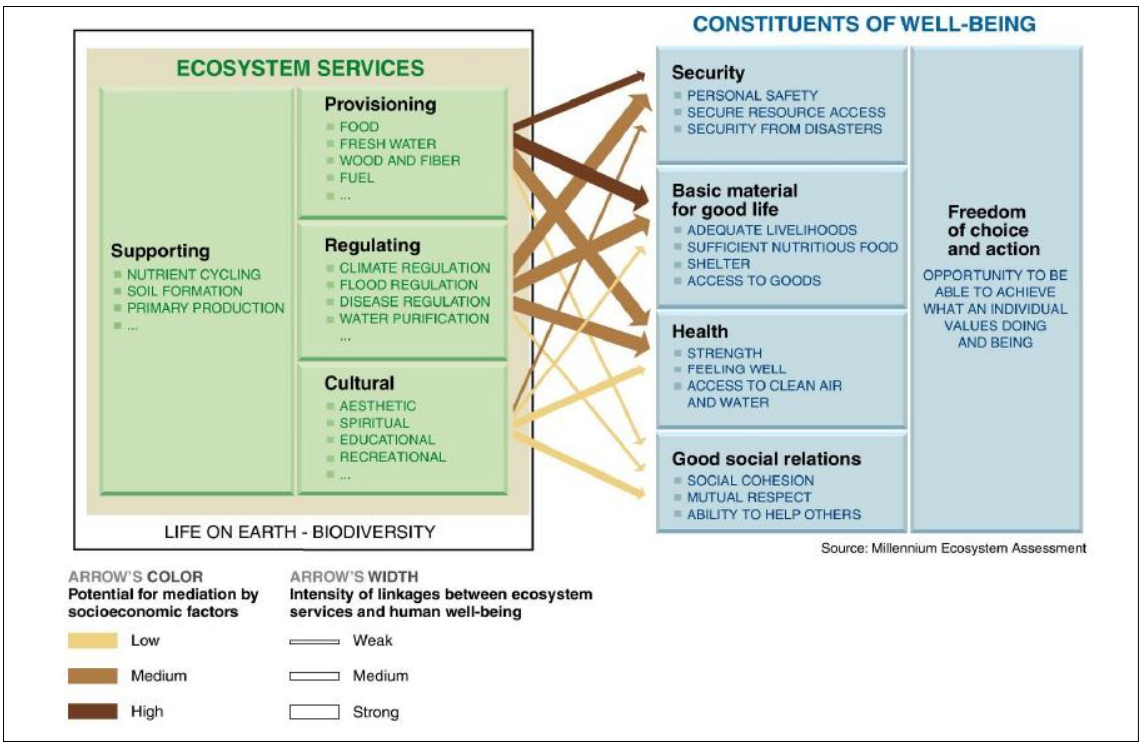

Figure 1:1 Millennium Ecosystem Assessment conceptual framework (MA, 2005: 28)

In order to secure future wellbeing, strategies were needed that could protect and enhance existing biodiversity, and utilise remaining natural resources sustainably. The MA was intended to provide a structure for such strategies, leading to the development of institutional practices which would better align human social systems with ecosystem functions. Applications of the MA framework have since included ecosystem assessment, economic valuation and policy development, such as the UK National Ecosystem Assessment (Defra (a), 2007; Haines-Young and Potschin, 2008; UK NEA, 2011).

1.1 Rationale

Ecosystem service approach (EsA) frameworks have attempted to capture the social importance of so called 'nonmaterial' ecosystem-derived benefits under the heading 'cultural services'. This term, and the closely related 'information function' (de Groot *et al,* 2002) relate to manifestations of eco-sociocultural phenomena such as nature-related recreation, education, religion, aesthetic inspiration and cultural heritage (Alcamo, 2003: 57). This thesis contends that, since EsA frameworks reflect processes of scientific research, they are themselves expressions of cultural services, as represent the reification of ecosystem knowledge through social systems. As such, understanding the role of these ecosystem-derived values and processes in society may be instrumental in realising the very aims of MA-derived frameworks. However, despite being both contributory to human wellbeing and the conservation of biodiversity, both cultural services and information functions are noted as being understudied areas (Newton, 2007; Hanna, 2010). The divide between biophysical and socioeconomic components of ecosystem service frameworks is said to be 'wide and prevalent', and as such, "…a new kind of interdisciplinary science is needed to build an understanding of social–ecological systems" (Yin and Zhao, 2012: 63-64).

A shortage of primary studies and theory, and subtle differences in characterisation between framework documents has led to difficulties conceptualising cultural services (Church *et al*, 2011), and consequently their omission from valuation studies (e.g. Rodriguez *et al*, 2006). The capacity of methods such as contingent valuation, hedonic pricing, and travel cost methods to accurately value ecosystem services to society has been questioned (Hall, 1996). More recently, calls have been made for the exclusion of cultural services from ecosystem service frameworks (Boyd and Banzhaf, 2007; Fisher *et al,* 2009) on the basis that this service requires labour and material inputs which are perceived to be 'non-ecological'. This contrasts with the view of humans as 'integral' to ecosystems (MA, 2005). Perceptual incongruities such as this have led to resistance in deployment of the ecosystem services approach for economic policy, national accounting and individual project appraisal (Hindmarch *et al,* 2006). The epistemological consistency of ecosystem approaches is noted to be important, since the 'marked variability' and 'philosophical discrepancy' between definitions can effect ecosystem service assessments (Nahlik et al, 2012: 27). These observations highlight the need for a thorough exploration of the cultural services concept and its expression in social structures. It is in this context that the thesis is set, and towards this wide-ranging purpose that it hopes to make a contribution.

1.2 People in nature and nature in people

It can be argued that concept of ecosystem cultural services is essentially a commentary on the interaction of people with other parts of ecosystems. Whilst this commentary is delivered as a socio-cultural perspective, the phenomena itself manifests at multiple scales of reference. For example, education, religion, inspiration, and recreation have both individual and collective elements; taking the form of psychological states, behaviours, processes, social institutions, and/or economic sectors.

Within this thesis it is assumed that formative cultural services, prior to any collective activity, can be viewed as resulting from a process of interaction between individuals and their external environment. Whilst these interactions may inform subsequent social practices in other locations, the cultural services phenomena in its *rawest form* is observed to be found at the point-of-contact. This presents the location for this study; i.e. individuals situated within an ecosystem- people in nature. The thesis also takes the position that, "…the body can never be understood as an essence or as a self-contained entity, independent of an outside with which the body is relationally constituted" (Abrahamsson and Simpson, 2011: 332). Whilst the study is not biologically driven, it regards the 'nonmaterial' definition of cultural services (MA, 2005) with caution, since recognises that, "…the distinction between states and experience (when we discuss emotion), or between subjective versus objective self-awareness (when we discuss the self), can be explored at a biological level" (Lewis, 1991: 231). This adds a realist intimation to this social constructivist study as accepts the relevancy of nature (biology) in people.

1.3 An exploration

Since the study of cultural services for use in economic and political contexts is a new area of academic concern, this thesis uses an exploratory approach to generate theory which will inform and advance the field (Table 1:1). The rationale for the selected methodology is described in full in Chapter 3.

Table 1:1: Purposes of exploratory research (from Robson, 2002: 59)

To find out what is happening, particularly in little understood situations
To seek new insights
To ask questions
To assess phenomena in a new light
To generate ideas and hypotheses for future research

The thesis is structured around qualitative data, selected for its provision of opportunities to gain deep insights into the meaning, quality and texture of experience (Willig, 2008: 8). A flexible design has allowed for the thesis to evolve, develop and unfold (Robson, 2002: 5) and enabled the research direction to respond to new findings as these have emerged. Subsequently, the epistemological foundations of the study have evolved alongside data collection, whilst the integration of new findings into the thesis has led to a progressively contextualised account of cultural services.

1.4 A constructivist perspective

Current ecosystem service approach frameworks present accounts of ecosystem services from a 'realist' position (Potter, 1996: 125) that is, under the assumption that services can be neutrally and objectively described. In accordance with this, the thesis started from a critical realist standpoint. However, as the study developed, it became evident that cultural services were a highly complex phenomena, which varied under different conditions. Furthermore, the depiction of this phenomena for economic and policy application was shaped by its textual representation, signifying that the language used to construct accounts of this service was fundamental to its interpretation and consequential social practice. Inclusion of the term 'constructivism' in the thesis title is intended to highlight the critical stance adopted in the study, since "...where the term 'constructivism' is used, this is in order to convey … that meaningful versions are necessarily incomplete, pluralistic and contradictory; and that this insight can be used as an analytical device to take apart (or deconstruct) socially constructed facts" (Henwood, 1996: 28). The awareness of these issues arising, as they did, throughout the study, has formed a key part of the results, and influenced the progressive development of the thesis aim and objectives (Section 3.1).

1.5 The case-study site: Aspley Woods and Heaths

A single study site was selected for the thesis. The site consists of approximately 320 hectares of mixed habitat land on the county boundary between Bedfordshire and Buckinghamshire (England), and is adjacent to the small villages of Aspley Heath and Aspley Guise. The site is known by a number of names, and is divided into a series of subsections. For the purposes of this thesis it is referred to as Aspley Woods and Heaths (Figure 1:2). The subsections within the site are Aspley Woods, New Wavendon Heath, Old Wavendon Heath, Browns Wood, Bow Brickhill Park, and Wavendon Wood. The A5130 road intersects the site. Aspley Woods and Heaths is located on the western tip of a landform known as the Greensand Ridge. This elevated ridge has an underlying bedrock which consists of Lower Greensand (known locally as the 'Woburn Sands') and the resulting sandy soil and undulating topography

influence land use. Fuller's earth deposits and sand have been quarried at the site for over 900 years, and large scale open cast mining took place for a 50 year period, ending in 2002.

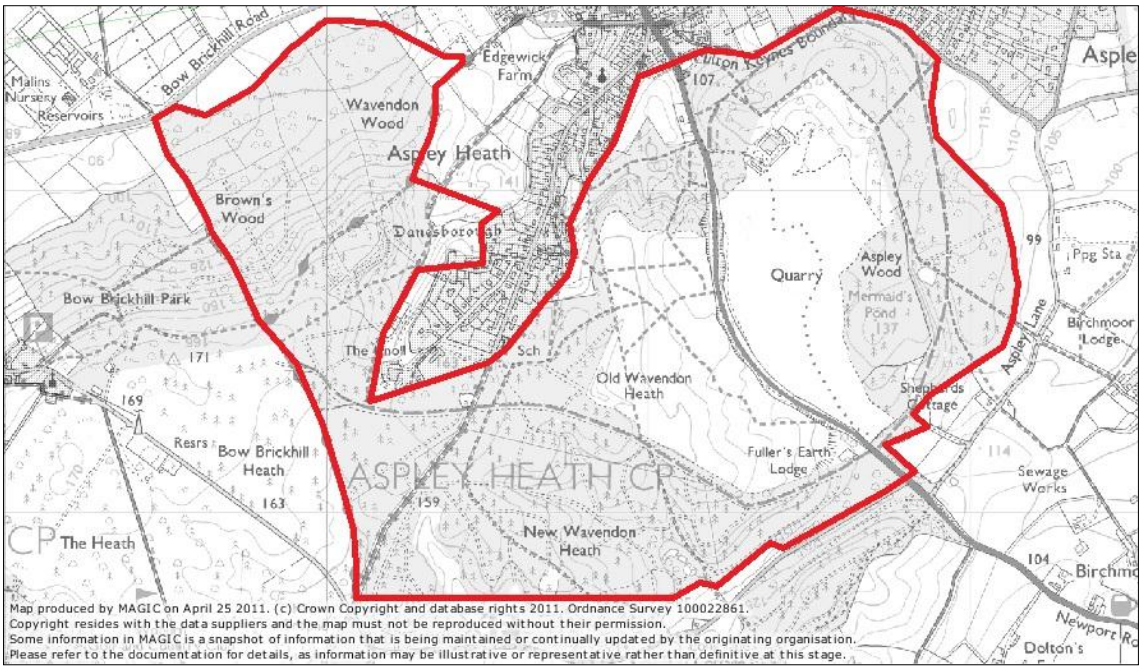

Figure 1:2: The case study site, Aspley Woods and Heaths (1:15000)

Part of the site, Aspley Sandpit, is managed as a charity to provide a recreational facility for local children. The ownership of the sandpit is unverified, but is thought to be the local parish council. The remainder of the site is owned by the Bedford Estate and managed as commercial forest. The current semi-natural woodland plantation is approximately 50% conifer and 50% broadleaf. The site also contains other natural habitats related to bedrock and hydrology: i.e. areas of heathland, acid grassland and ponds. There are a number of designated areas within the site, these being: Ancient Semi-Natural Woodland (ASNW), Site of Special Scientific Interest (SSSI), Scheduled Ancient Monument (SAM) and County Wildlife Site (CWS). Despite Ordnance Survey labelling of the area as 'CP' the site does not have formal country park status.

Extensive public access is made available by way of an access agreement between the landowner and two local authorities; Central Bedfordshire Council and Milton Keynes Council. A local conservation charity, the Greensand Trust, is contracted to manage public access. This site is believed to be the largest area of privately owned land supporting an access agreement in lowland England. Opportunities afforded by the access agreement allow for a wide range of recreational activities, and as such, the site is known nationally for mountain biking, and is an important resource for the local community. The increasing popularity of outdoor activities, rapid growth of nearby

urban settlements (e.g. Milton Keynes), and varied forms of land use surrounding the site (Figure 1:3) have resulted in growing visitor numbers and intensified pressure upon the site infrastructure and habitats.

Figure 1:3. Schematic of the case study area and surrounding land use

Aspley Woods and Heaths was selected for this study as the multi-functional land use, public access and designated land statuses revealed a plethora of opportunities for the manifestation of site-based cultural services. A single site was appropriate as made the best use of available resources, whilst providing extensive research materials to accommodate the exploration of complex cultural services relevant phenomena.

1.6 Overview of the thesis

The issues detailed in Section 1.1 led to the overarching research question 'what are ecosystem cultural services?' and the following subsidiary research questions:

1. How are cultural services defined?
2. Do academic definitions fit the phenomena observed in the field?
3. How might the characterisation of cultural services be improved?

Following this, the broad aim of the thesis is thus to deconstruct, explore, clarify and enhance the academic concept known as an ecosystem cultural service.

This aim is fulfilled through the following research objectives:

1. To review a range of published literature which relates to cultural services
2. To identify cultural services-type phenomena occurring in a multi-habitat site
3. To identify contextual circumstances influencing the cultural services of a site
4. To review institutional arrangements which organise access to the cultural services of a site
5. To review the role of discursive resources in representations of cultural services

The structure of this thesis reflects the principle that ecosystem cultural services may be constructed in a variety of ways, and that these constructions are related to frameworks of understanding which are used to derive meaning from phenomena.

Chapter 2 comprises a literature review of key cultural services publications. It traces the recent development of the concept to give an overview of the current academic position, and identifies theoretical themes which are inherent to the topic. This chapter relates to the fulfilment of research objective number 1.

Chapter 3 outlines the aim, objectives and research design for this flexible study. It explains the phased approach used to collect and analyse data; describes the processes involved in the literature review, case study, and discourse study; and details values which guided the thesis with the aspiration of attaining excellence in qualitative research. A paper on the research design for the thesis was presented at the 'People and Science' conference (King, 2007), and a paper presenting the conceptual framework was delivered to the 'Trees and Forests in British Society' conference (King, 2010).

Chapters 4 and 5 present findings from an extended literature review, intended to compensate for the shortage of primary cultural services literature. Chapter 4 builds upon the theoretical themes identified in Chapter 2, to show how the cultural service concept is socially constructed, and founded upon a series of evolving academic discourses. Chapter 5 features published interdisciplinary research which converges with that of the cultural service, thus enhancing our understanding of this concept. These chapters relate to the fulfilment of research objective number 1.

Chapter 6 presents case-study findings which explored the activities and associated experiences of visitors to a multi-habitat site. Research findings are organised using 'place theory' (from the discipline of environmental psychology), a helpful heuristic

with which to understand processes of primary cultural services formation at an *individual* level. This chapter relates to the fulfilment of research objective number 2. A poster which outlined selected results from this chapter was presented at the 'Annual Sustainable Development Research Conference' (King, 2009), and an e-document which was produced for 'Forest Research' (King, 2011).

Chapter 7 focuses on the spatially and temporally contextualised nature of site-situated cultural services. Utilising case-study results, it embraces both diachronic and synchronic perspectives to show that natural and social processes, occurring *outside* the current time frame and site boundaries, influence the manifestation of cultural services therein. This chapter relates to the fulfilment of research objective number 3.

Chapter 8 uses theory from the discipline of institutional economics, to show how cultural services from privately owned land are *publicly* available due to site-based 'resource regimes'. It explores how resource regimes organise the distribution of cultural services, and in doing so, incur transaction costs which then become hidden forms of investment embedded in the unrestricted consumption of cultural services. This chapter relates to the fulfilment of research objective number 4. A paper which highlighted selected findings from chapters 7 and 8 of the thesis was presented at the 'Environment DTC Research Conference' (King, 2011).

Chapter 9 considers how cultural services are represented and developed through 'discursive resources'- i.e. the terms and frameworks of understanding which are available within a culture to describe phenomena. Results from a discourse analysis (performed on site-specific documents) show how cultural services are purposefully constructed using specific discursive resources, and that these form the basis of social practices such as designation and land management. This chapter relates to the fulfilment of research objective number 5.

Chapter 10 focuses on the manifestation of cultural services as personal discourse by exploring how individuals use discursive resources to construct the study site. Descriptions of site-based cultural services were found to be related to the interpretative socio-cultural context of interviewees' lives, showing that these are simultaneously an individual and collective phenomena. The chapter contributes empirical and theoretical insights to the study, and ends by proposing a theory for the process of cultural services creation. The chapter relates to the fulfilment of research objective numbers 2 and 5.

Chapter 11 synthesises findings from the entire study in order to fulfil the thesis aim to clarify and enhance the cultural service concept. It shows how the research objectives

have been met by the study, and provides a new perspective on cultural service definition and categorisation. A hypothesis is put forward for the process of cultural service creation, and emphasises the importance of discourse in culture formation.

Chapter 12 translates the main thesis findings into a list of implications for land management and policy contexts, for progressing academic understanding, and for enhancing future cultural services research design.

Selected findings from the research have been communicated to stakeholder groups at different stages of the research. Two presentations were made to the Bedfordshire Biodiversity Forum (21.05.07 and 23.01.08), and a presentation and guided tour of the study site given to the East of England Biodiversity Forum (24.04.08). Material was provided for the Bedfordshire Geology Group newsletter (01.10.09). Following submission of the thesis, an executive summary has been written for distribution to stakeholders who have been involved in the research: Bedford Estate Archives, Leviticus Collective, Central Bedfordshire Council, Milton Keynes Council, Aspley Guise Parish Council, Aspley Heath Parish Council, Bedfordshire and Luton Biodiversity Partnership, Wildlife Trust, Greensand Trust, Bedfordshire Geology Group, Aspley Woods User Group, and Aspley Guise P3.

Plate 1:1: Light through deciduous trees, Aspley Woods

2 Literature review

This chapter reviews the core literatures involved in the evolution of the cultural services discourse. A review paper which analysed 6597 of the most influential environmental and ecological economic articles (Hoepner *et al*, 2012) showed that of these, only two papers (Kumar and Kumar 2008 and Martinez *et al*, 2007) had either the words 'cultural' or 'social' in the title. From this it is asserted that cultural services are not a well-studied topic. A further paper reviewed critical literature in order to understand problems arising from the Millennium Ecosystem Assessment's definition and classification of services (Ojea *et al*, 2012). This paper concluded that, "…there is a need for research into the definition, interpretation and classification of ecosystem services…" and, "…future studies need to focus on the relations between functions and services" (Ojea *et al*, 2012: 9). This chapter subsequently examines how the concepts of information *function* and cultural *service* (IF/CS) appear in published works, and identifies the key themes which pervade and bound the cultural service construct. The conclusions of this review provide a broad indicative structure for the methodology chapter which follows.

2.1 Development of a 'unifying principle'

Dutch biologist and landscape ecologist de Groot (1987) first proposed the concept of environmental or ecosystem functions through a new economic model intended to address the problem of environmental degradation. It followed publication of the World Conservation Strategy (IUCN-UNEP-WWF, 1980) which had been criticised by economists and decision makers in part because of difficulties in the interpretation and communication of key terms and strategies. This problem was attributed to a lack of collaboration between ecologists, conservationists, economists, planners and decision-makers (de Groot, 1987: 108).

In order to address these issues, de Groot argued that the reconceptualisation of natural resources as 'functions' would improve understanding of the ecological and socio-economic benefits of the environment. This new line of reasoning presented a shift from the static concept of a natural 'resource' itself (noun: a stock or supply to be drawn upon) to that of the resource's 'function' (verb: the mode of action by which the ecosystem resource fulfilled its "purpose"). It sought to create a new vocabulary which would be understood by experts across multiple disciplines, allowing for consideration and inclusion of the processes provided by ecosystems and their consequent relationship with social systems. In order to communicate effectively with economists and planners, de Groot made particular reference to the ways these functions

provided hitherto unrecognised socio-economic benefits (of prime importance), and noted that *functional* information on these services could serve a wide variety of users (de Groot, 1987: 109).

De Groot's argument for a 'unifying principle' to align ecology with economics was developed further in his book *Functions of Nature* (1992). This book aimed to present a "comprehensive and universally applicable evaluation method" (de Groot, 1992: 6), developed through a synthesis of 'original ideas' and then tested through a series of case studies. The method translated environmental 'characteristics' (as evident in natural and semi-natural ecosystems) into an anthropocentric concept of function, defined as "...the capacity of natural processes and components to provide goods and services that satisfy human needs (directly and indirectly)" (de Groot, 1992: 7). These contributions were firmly rooted in a realist ontology that, although not explicated, encompassed social and cultural phenomena as well as 'natural' ones in a single framework.

This work provided the first taxonomy of ecosystem functions, categorizing the regulation, production, carrier, and information functions. The term Information function was coined to encapsulate the capacity of ecosystems to contribute to people's mental health by providing opportunities for reflection, spiritual enrichment, cognitive development and aesthetic experience (de Groot, 1992: 9). The carrier function was defined as constituting *space*, a 'suitable substrate' for human activities such as recreation and tourism. Certain environmental characteristics were specified as influencing this carrier function, such as the attractiveness of scenery, its uniqueness, and the diversity and 'naturalness' present in it (de Groot, 1992: 80). Brief mention was also made of the concept of 'negative' functions, such as the effects of extreme weather conditions (de Groot, 1992: 5). De Groot's book also provided a checklist of processes and components relevant to the creation of ecosystem services (Table 2:1).

Table 2:1 Processes and components of ecosystems which create ecosystem functions (after de Groot, 1992)

Abiotic processes	**Biotic and integrated processes**
1. Bedrock characteristics and geological processes	5. Soil processes and properties
2. Atmospheric properties and climatological processes	6. Vegetation/ habitat characteristics
3. Geomorphological processes/ properties	7. Species-properties and population dynamics
4. Hydrological processes and properties	8. Life-community properties and food chain interactions
	9. Integrated ecosystem characteristics

It is noteworthy that these items were heavily orientated toward natural processes, and excluded social and cultural ones. This exclusion was a trend shared by ecosystem service approach publications which were to follow, and which tended to separate the 'natural' from the 'human' rather than to envisage the human community as a subsystem of ecological systems.

Another ecosystem service work of considerable influence was *Nature's Services*, a volume edited by ecologist Gretchen Daily (1997). This work, framed by theory in conservation biology, offered a synthesis of knowledge about ecosystem services through chapters from selected experts, and provided a preliminary neo-classical economic valuation of those services. Stated as being *interdisciplinary* in nature, the volume examined the services provided by particular biomes in direct relation *to* those biomes, which reflected the primacy given to habitat within an emerging conservation narrative, rather than to the contributions that ecosystems made to the knowledge, experience and livelihoods of people. Although the book contained no formal definitions of information functions or cultural services; descriptions of IF/CS-type phenomena were found throughout the chapters. Opportunities for people were described, such as the ability to engage in 'contemplation' (Goulder and Kennedy, 1997: 34) and 'immersion' (Peterson and Lubchenco, 1997: 187). Ecosystems services were said to offer support for 'diverse human cultures' (Daily, 1997: 4), and even to provide the basis of culture itself in many traditional or native societies (Peterson and Lubchenco, 1997: 189). They were said to have scientific and aesthetic appeal (Peterson and Lubchenco, 1997: 185-190) and to give intellectual stimulation that "lifts the human spirit" (Daily, 1997: 4). Ecosystems *as settings* were said to provide areas for recreation in various forms (Postel and Carpenter, 1997: 202), due to "…beautiful landscapes and exceptional biota" (Cowling *et al*, 1997: 347-348).

One sub-chapter headed 'Information Goods' focussed on the extraction of marine resources for various purposes, such as public education, scientific research, collectable items, and ornamental goods (Kaufman and Dayton, 1997: 284). This process was presented as a *paradox* by the authors, as the benefits were portrayed as rare, precious commodities, 'fascinating to observe '; whilst the industry harvesting them was observed to be 'potentially wasteful and destructive' (Kaufman and Dayton, 1997: 284-285). The book tended to focus on evidence from natural sciences and paid most attention to *processes* such as biogeochemical, hydrological and sedimentary cycles, which were then related to ecosystem services. The work did not include or develop a conceptual framework which allowed for the integration of social phenomena, as shown by the inconsistent inclusion and deficient language used amongst different chapters.

A paper published in Nature in the same year by Costanza *et al*, (1997) drew on both the Daily and de Groot publications to become the most highly-cited work relating to ecosystem services. The analysis utilised the ecological economic paradigm to give a crude estimate of the *total economic value* of 17 ecosystem services for 16 different biomes. The study authors conceded that a number of conceptual and empirical problems were inherent in that valuation, not least the inadequacy of primary studies of specific kinds of services and biomes. The existence of price distortions (due to externalities and the effects of the 'informal economy'), of people's ignorance in 'willing-to-pay' estimations, and of numerous other problems (Costanza *et al*, 1997: 258) was said to restrict the accuracy of the attributed values. These issues were recognised as additional to any ethical objections that people might offer in defence of the *intrinsic value* of ecosystems.

Another study (Moberg and Folke, 1999) produced an empirically well-referenced paper dealing with cultural services and information functions in the context of a marine ecosystem. The paper gave a confident explanation of how services are generated, and noted that further understanding of the 'dynamic interactions' within coral reef biomes would allow for a fuller appreciation of ecosystem services. This paper is one of the few on IF/CS phenomena to differentiate between i) information services and ii)) social and cultural services, whilst providing empirical evidence for each (Table 2:2). The information services provided by reefs were said to comprise a 'monitoring and pollution record', and a 'climate record', whilst social/cultural services were said to consist of opportunities for 'recreation', 'aesthetic and artistic inspiration', the 'sustaining of community livelihoods', and 'cultural/religious/spiritual values' (Moberg and Folke, 1999: 219).

It is noteworthy that Moberg and Folke grounded their discussion in the framework provided by de Groot (1992) and Costanza *et al* (1997), before going on to present a thorough argument for both the existence and the categorisation of ecosystem services. The extensive evidence base is, once again, situated firmly in realist ontology (discussed in Chapter 3), and lacks any discussion of potential variation in people's interpretation of, or experience of, ecosystem benefits.

Table 2:2: Quantity of referencing support for information and cultural services of reef ecosystems (adapted from Moberg and Folke 1999: 222-223)

Aspect of IF/CS	Examples	Number of references
Information service	Monitoring possibilities e.g. climate/pollution records	4 for reefs as monitoring/pollution records
		6 for reefs as climate records
Social/ cultural service	Coral reefs support for recreational activities and tourism	3 for recreational value
		1 for aesthetic value
		1 for links between reefs/ community livelihoods
		3 for links with religious rituals
		2 for co-evolution of culture
		1 for associated traditions

2.2 Ecosystem Services Typology and information functions

The papers described in the previous section provided the foundation for the Ecosystem Services Approach, which was given additional structure and disseminated in another seminal paper (de Groot *et al*, 2002). This paper provided the first categorization of ecosystem services, through the publication of the 'Ecosystem Services Typology', a singular framework with clearly defined components (Figure 2:1). In an age-adjusted citation analysis of the most influential articles and journals in field of environmental and ecological economics (Hoepner *et al*, 2012: 204). This paper was found to be the "…most influential paper in environmental and ecological economics published in the 21st century".

Through the Ecosystem Services Typology, ecosystem processes and components were reconceptualised, categorised and defined as providers of functions of vital importance for humans. These bounded concepts were named the functions of 'Regulation', 'Habitat', 'Production' and 'Information' (Table 2:3), and relationships were established between these phenomena and corresponding 'best fit' economic valuation methods.

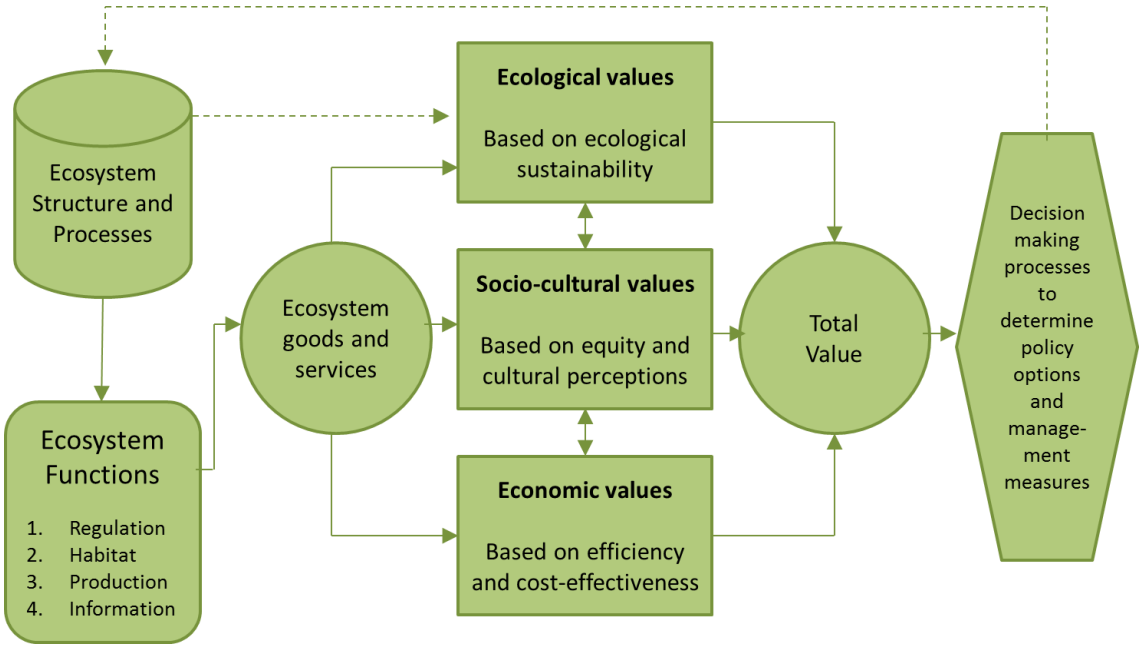

Figure 2:1: Framework for integrated assessment and valuation of ecosystem functions, goods and services (de Groot *et al*, 2002)

Table 2:3: Definitions of ecosystem functions (from de Groot *et al*, 2002: 395)

Ecosystem Function	**Definition**
Regulation	The capacity of natural and semi-natural ecosystems to regulate essential ecological processes and life support systems, through bio-geochemical cycles and other biospheric processes
Habitat	Natural ecosystems' contribution to the (in situ) conservation of biological and genetic diversity, and evolutionary processes, through provision of refuge and reproduction habitat
Production	The capacity of natural and semi-natural ecosystems to provide goods for human consumption such as raw materials, food, energy resources and genetic material
Information	Opportunities for reflection, spiritual enrichment, cognitive development, recreation and aesthetic experience, which together provide an essential 'reference function' for humans

Within the typology, the information function was described as the capacity of ecosystems to provide '...space and a suitable substrate for many human activities', which were then said to give "…opportunities for reflection, aesthetic enjoyment and spiritual enrichment" (de Groot *et al,* 2002: 395). This definition had been

reconfigured to include aspects previously referred to as part of the carrier function, which was now absent from the typology. The information function was then divided into five discrete categories, each with corresponding goods and services (Table 2:4).

Table 2:4: Information function subcategories and corresponding goods and services (taken from de Groot *et al*, 2002: 397)

Function sub-cat.	**Goods and services conferred**
Cultural and artistic information	Through variety in natural features with cultural and artistic value, e.g. use of nature as motive in books, film, painting, folklore, architecture, advertising, local symbols
Spiritual and historic information	Through variety in natural features with spiritual and/or historic value, e.g. the use of nature for religious and/or historic purposes
Science and education	Through variety in nature with scientific and educational value e.g. use for school excursions, for scientific research
Recreation	Through variety in landscapes with (potential) recreational uses e.g. eco-tourism, sport etc.
Aesthetic information	Through attractive landscape features e.g. enjoyment of scenery

It is noted that the information function presented in this typology did not include any rationale for the development of subcategories, and it appeared to comprise a residual category out of harmony with the other function concepts. Furthermore, the functions depicted by Table 2:3 appeared to reflect a series of underlying epistemological stances which did not necessarily complement each other. The typology, having been developed by conservation biology and economic experts, had no psychological, sociological or anthropological input. This might explain the rather awkward placing of the information function (a socio-cultural construct) within the overall framework, and the dearth of any detailed explanation of the kinds of 'processes' involved; processes that are listed for the other functions but absent for the information function.

De Groot *et al* (2002) provided a hypothesis grounded in biocultural and evolutionary theory to account for the existence of the information function, asserting that because "….the longest period of human evolution took place within the context of undomesticated habitat, the workings of the human brain for gathering information and a sense of wellbeing are very strongly tied to the experience of natural landscapes and species diversity" (de Groot *et al*, 2002: 395). However, this hypothesis, while offering a plausible explanation for the adaptive value of an information function, is

neither expanded upon nor referenced. Unfortunately, this trend continues throughout the paper, which only provides four citations (of either non-IF specific or non-academic origin) as evidence for the existence of the information function (de Groot *et al*, 2002: 401-402). This deficient 'grounding' of the concept in empirical research together with the lack of any discussion of the nature of psycho-social phenomena, weakens this particular contribution within the overall framework.

The social and cultural dimensions of the typology were advanced further by follow-on studies by Chiesura, using the information function concept as presented in de Groot's earlier work (Chiesura and de Groot, 2003; Chiesura, 2004). Study results were interpreted within a 'needs-based' framework, which portrayed the IF as contributing both to *personal needs* i.e. freedom, self-development, recreation, and psycho-physical health, and *collective needs* i.e. social contacts, norms and values, ideals, and cultural identity. Results were arranged to show that, through the information function, the environment provided "…opportunities to recreate, learn and experience 'higher' feelings" (Chiesura and de Groot, 2003: 223). Nature was presented as a source of human wellbeing which directly affected the quality of life and, more importantly, shaped people's subjective experience.

Chiesura's socio-cultural study made a substantial contribution to the overall IF/CS discourse, by adding a discussion of social phenomena and the 'inner life' of people. However, a number of problems emerge when the work is deconstructed. The research design (as published) appears to lack any interpretative or reflexive discussion of the sort that is usual in a socio-cultural study. Questions regarding what constitutes *'needs'*, what *is* irreplaceable, and *for whom*, were left unarticulated. Moreover, the 2003 paper gives no mention of any negative effects that the experience of the environment can have on people, or of trade-offs between the information function and other functions. The impression is thus given that such experience is always positive and beneficial, revealing a possible bias in the study design. Furthermore, Chiesura and de Groot (2003) make a number of unsupported and under-developed declarations concerning the ethical, spiritual and affective dimension of people's relations with nature. The study would have been strengthened if there had been further development of the stated connections between individual experience and social benefits, and if additional citations of alternative viewpoints had been provided. The lack of this may, however, simply reflect the complexity and immaturity of the IF/CS discourse at this early point in time, given its multi-disciplinary nature.

The second publication to arise from this study (Chiesura, 2004) presented findings from further primary research, undertaken against a backdrop of declining scientific attention towards small-scale, urban green spaces, and the apparent increasing

importance of parks in enhancing the quality of life for people living in cities. Open-ended questions to address variables of relevance to wellbeing showed that the interviewees perceived the benefits attributed to the information function to be a part of their reason for visiting parks. Responses were presented as three rather awkward benefit categories: 'motives for nature' (e.g. relaxation and escape); 'emotional dimension' (e.g. unity with self and adventure); and 'public satisfaction'. Based on these results, Chiesura defined the information function to be "...natural areas' provision of social and psychological benefits which enrich human life with meanings and emotion" (Chiesura, 2004: 135).

Some reference was made to people's negative experiences linked to park visitation, connected to 'feelings of insecurity' and the 'fear of crime' (Chiesura, 2004: 136), but these received no further attention. Overall, three core dimensions fundamental to the experience of the information function were revealed through the open-ended element of the study, these being a Restorative element, an Amenity function, and a Spiritual element. Examples for each of these dimensions are given in Table 2:5.

Table 2:5: Underlying dimensions of the information function (from Chiesura 2004: 135)

Element of IF	**Examples from primary study**
Restorative	Recharge batteries, need for nature to function well
Amenity	Forget daily worries, break from stress, routine change
Spiritual	Value and essence of life, belonging to nature, basis of life

Deconstructions of various elements of the Chiesura (2004) paper again reveal certain deficiencies. It was stated that a factor analysis showed the presence of two principal components around which people's answers were grouped: recreation and spirituality. Regarding recreation, it was asserted that "...the experience of nature is a source of positive feelings which recreate the spirit" (Chiesura, 2004: 135). Regarding the spiritual dimension, it was contended that this "...reflects the need to reach higher states of mind" (Chiesura, 2004: 135). However, neither of these findings are expanded upon, supported by references, or linked directly to primary data; and both suppose that all people have similar needs, values and characteristics. It may have been better to leave this as an open question, pointing to the likelihood of some variation. Questions could also be raised over the suitability of research design, most notably the sampling technique, and the use of a survey or questionnaire methodology for a new area of academic interest. Benefit would have come from further explication of the questionnaire design, and of how the survey results were interpreted to lead to published findings.

Nevertheless, the perspectives offered by Chiesura's research are welcome, given that they represent the only primary studies specific to the information function. In this respect, it is perhaps important that Chiesura's findings eventually deviated from the original account of IF/CS. Furthermore, many of the issues raised above may be paradigmatic in origin, since IF/CS conceptualisations as per earlier publications are rooted in a rationalist utilitarian epistemology, which does not necessarily bear fruit when applied to psycho-social or socio-cultural phenomena. In a further project de Groot *et al* (2003) presented a theoretical framework for identifying 'critical' natural capital. Some important conceptual advances were made concerning how to define criticality, and ways of differentiating the 'naturalness' of cultivated systems. Regarding aspects of criticality, a distinction was made between definitions of critical natural capital for ecological reasons, and those of socio-cultural importance. As such, the concept of 'critical social natural resources' was cited to reflect, "...semi-natural landscapes that are of critical value largely as a result of their social value to a local community, rather than any outstanding ecological or scientific value" (English Nature, 1994: 31). It is asserted that the inability to *recreate* an experience by other means is itself an indicator of criticality, and since the social experience permitted by some natural areas is difficult to recreate, these may constitute 'critical social natural resources'.

De Groot *et al (*2003) discussed the modification of natural capital stocks (such as through agriculture or forestry) in order to maximise selected ecosystem functions. This modification is said to relate to the concept of ecosystem 'naturalness', which declines as this process of maximization and specialization take place, and may be conceived as existing along a spectrum according to the degree of human influence on the land (Table 2:6).

Table 2:6: Systems of natural/cultivated capital (adapted from de Groot *et al*, 2003: 188)

System type	Unique systems	Semi-natural /co modified	Sustainable cultivated systems	Intensive cultivated systems	Urban green space	Built environment
Example	Primitive forests, original wetlands, coral reefs	Sustainable forestry, extensive rangelands, buffer zones	Agroforestry, organic farming, shifting cultivation	Tree plantations, agriculture, aquaculture	Parks, greenbelts, greenhouses, zoo's, botanical gardens	Infrastructure, housing, industrial areas
Character	→ Increasing ecological footprint, domestication, inputs of energy, labour ← Decreasing uniqueness, self-renewability, multi-functionality, ecological space					

It is noted that issues of scale are omitted from the discussion, such as what size unit of land is appropriate for this type of analysis. Additionally, some types of system do not fit neatly on this spectrum, such as the current study site which contains both semi-natural and intensively-cultivated areas, but no area of sustainable cultivation.

2.2.1 Deconstructing the information function definition

The information function concept has been presented as a 'real-world' phenomena; nevertheless, its representation in academic texts is effectively related to the language used to construct the IF as a narrative. As such, additional insight may be gained through the deconstruction of a key information function definition, provided by de Groot *et al* (2002). Since the readership for information function defining framework documents is likely to be academic, policy-making and/or land managing, standard Oxford English definitions have been used as an aid to interpretation here, and in Section 0.

The information function definition relies on the concept of ecosystem functions, which in turn are dependent on the concept of ecological processes and structures. These processes and structures have been defined as, "… the biological, chemical, and physical interactions between ecosystem components" (Boyd and Banzhaf, 2007: 620), and are said to be the result of "… complex interactions between biotic (living organisms) and abiotic (chemical and physical) components of ecosystems through the universal driving forces of matter and energy" (de Groot *et al*, 2002: 394). Ecosystem functions are regarded as a subset of ecological processes and structures (de Groot *et al,* 2002), and have been defined independently as, "…the capacity of natural processes and components to provide goods and services that satisfy human needs, directly or indirectly" (de Groot, 1992: 7).

The information function has subsequently been defined as the capacity of a natural ecosystem to provide "… an essential 'reference function' (which contributes) to the maintenance of human health by providing opportunities for reflection, spiritual enrichment, cognitive development, recreation and aesthetic experience" (de Groot *et al,* 2002: 395). This definition may be analysed by further exploration of the terms 'capacity', 'reference', 'function', and 'opportunities'. The concept of *capacity* has been defined as "the power of containing, receiving, experiencing, or producing" (Thompson, 1998: 192). The word *reference* has been defined as "the referring of a matter for decision or settlement or consideration to some authority" (Thompson, 1998: 1153). The word *function* has been defined as "an activity proper to a {person or institution}", and as "a mode of action or activity by which a thing fulfils its purpose"

(Thompson, 1998: 548). These definitions may be used to develop a better understanding of the IF concept as a narrative.

Ecosystem processes and components create a capacity. Since the capacity created is that of a 'reference function', this could mean that the ecosystem contains and produces 'something' which is received and experienced by people. Based on these dictionary definitions, the author interprets the term 'reference function' to have a threefold meaning. It is the 'mode of action' which constitutes the ecological processes and structures, and which works to fulfil the 'purpose' of the ecosystem. The idea of an ecosystem having its own purpose indicates it has intrinsic value. It may mean the 'proper activity' of those ecological processes and structures, i.e. the health and integrity of an ecosystem in balance. 'Reference function' may also mean the 'activity' and 'mode of action' which constitutes the human process of referring to the ecosystem for decision, consideration, or settlement of matters. The experience or reception of ecosystem 'information' (to settle that matter) is not an absolute, but are 'opportunities' which exist for reflection, spiritual enrichment, cognitive development, recreation, and aesthetic experience, which are advised to be beneficial to human health.

This depiction of the information function raises an important question, as to the point at which phenomena ceases to be an information function, and becomes phenomena of another order. Since the definition does not state explicitly what the capacity of the ecosystem *is*, (i.e. what it 'contains and produces' which is received and experienced by people), we have to presume (given the title) that this refers to *information received by the senses*. If the IF refers only to this capacity (i.e. sensory information which **is** as a result of ecosystems existing), then the presence of humans is arbitrary. However, without humans, the *IF* ceases to exist, since it is only in relation to humans that it has definition. In this case, it is necessary to broaden the definition to include the *reception* of the ecosystem sensory stimuli, and doing so, this consequently includes human sensory systems and behavioural responses within the information function definition. This particular conceptual problem made the term difficult to use, and contributed to the choice to use the cultural service concept for the remainder of the study.

Expansion of this definition effects a further premise made however; that the IF 'contributes to the maintenance of human health'. This statement implies that the IF and 'human health' (as understood through the biomedical model) are separate things, but that there is a causal relationship between the two. Yet as already been shown, the IF (as sensory information) cannot be separated from the reception of it. In order to identify a causal link between particular ecosystem sensory stimuli and particular

behavioural responses, it would be necessary to first isolate these from others occurring in a human body (simultaneously or in combination) as a result of other stimuli and drives. It would also be necessary to correctly link the contribution of the 'ecosystem stimuli-prompted' response to the proper functioning of some bodily system, and then show how this results in 'health'. As this level of identification seems unlikely, it is currently difficult to state, with any *empirical* certainty, that the IF contributes to (biomedical) health. This is not to say that health benefits do not arise, but rather that the reductionist approach dominant in biomedical research may not yield results conducive to the information function concept, and a *wider body* of health literature may need to be consulted in order to draw this conclusion.

2.3 Millennium Ecosystem Assessment and cultural services

These works were followed by the largest and most influential work (in terms of size, number of people involved and financial backing), which subsequently dominated the Ecosystem Services Approach discourse: the Millennium Ecosystem Assessment (MA, 2005). A response to the findings of earlier biodiversity conventions, the assessment (initiated by the United Nations in 2001) was based on a synthesis of knowledge (accommodating multiple frames of reference) from literature, existing data sets, local communities, and from indigenous peoples. Findings were subsequently released in five technical volumes and six synthesis reports, largely (but not exclusively) published in 2005. The main message from the MA was that changes to ecosystems have contributed substantially to economic gain and to increases in wellbeing for some people, but to an exacerbation of poverty for others and a depletion of the Earth's natural capital more rapidly and extensively than in any other period of human history (MA, 2011). This narrative of destruction is then situated within a scenario of increasing *risk;* the growing threat of 'nonlinear change', and the questionable ability of the planet's ecosystems to sustain future generations. Reversing this trend of ecological degradation is said to be paramount, and will require significant changes in policies, institutions and practices related to many ecosystem services over the next fifty years (MA, 2011).

Broadly speaking, the MA provides definitions for ecosystems (MA, 2005: 27), for habitat types (MA, 2005: 31), and for a conceptualisation of human wellbeing (MA, 2005: 29-30, discussed later). It considers 'drivers of change' (MA, 2005: 32) at three organisational levels: individuals/ small groups at a local level, decision-makers at a national level, and decision-makers at an international level (MA, 2005: 85). For the most part, it endeavours to take an international viewpoint; considering the global impacts of many drivers of change: demographic, economic, socio-political, scientific/technological, cultural/ religious, and physical/ biological/ chemical (MA,

2005: 91). Trends were included to illustrate points, including stories of declines in the numbers of sacred groves, declines in the quantity and quality of aesthetically pleasing landscapes, and the degradation of landscape features (MA (a), 2005: 44)

As previously mentioned, the Millennium Ecosystem Assessment presented a conceptual framework (Figure 1:1, page 1) which referred to a phenomena largely consistent with the previously- published discourse on the information function, now reclassified as an ecosystem's 'cultural services' (CS). The MA uses a different categorisation of ecosystem functions from De Groot, since the central premise is that all ecosystem functions and services are dependent on biodiversity; i.e. the variation within and between species and between habitats. From this perspective, the MA recognises "Provisioning" and "Regulating" services using the same structure as de Groot. However, the "Habitat" service, previously mentioned by de Groot, is not individually categorised however, as all services are perceived to arise out of biodiversity. A new category of "Supporting" services is added, including both nutrient cycling and soil formation, although de Groot had previously considered these as Regulating Services. Lastly, the framework includes 'cultural services'. The MA defines cultural services as, "nonmaterial benefits obtained from ecosystems" (Alcamo, 2003: 57). These benefits are initially listed as being spiritual and religious, recreation and ecotourism, aesthetic, inspirational, educational, sense of place, cultural heritage, but are later expanded into ten benefit categories (Table 2:7).

One criticism of the categorisation in Table 2:7 is its failure to contribute to our understanding of how these different aspects relate to each other. The simplification of complex issues, and the failure to address how benefit categories relate to each other may actually reduce our appreciation of these phenomena, as highlighted by a later cultural service paper which observes that, "…representing such disparate notions on the same spectrum risks conflating fundamentally unlike things" (Chan *et al*, 2009: 10).

Table 2:7: Specific nonmaterial benefits provided by ecosystems (Alcamo, 2003: 59)

Nonmaterial benefits	**Example / Explanation**
Cultural diversity	Ecosystem diversity a factor influencing cultural diversity
Spiritual and religious values	Value attributed by certain religions to ecosystems (or parts)
Knowledge systems (traditional and formal)	Influence of ecosystems on types of cultural knowledge systems
Educational values (formal and informal)	Components and processes of ecosystems as a basis of education
Inspiration	Ecosystems as a source of inspiration (e.g. for art, folklore, architecture, advertising, and national symbols)
Aesthetic values	Value attributed on basis of beauty or aesthetic appreciation (e.g. as shown by preference for specific housing locations)
Social relations	Influence of ecosystems on establishment of particular types of social relations within cultures (e.g. nomadic societies)
Sense of place	Value attributed to a place based on the appreciation of recognised environmental features
Cultural heritage values	Value attributed to historically important landscapes, or culturally significant species (shown by conserving or protective behaviours)
Recreation and ecotourism	Influence on recreation and leisure activities related to ecosystems

This early MA publication (Alcamo, 2003) does not acknowledge that certain kinds of knowledge and spiritual beliefs may underpin and be shaped *by* culture, as well as being fostered by the environment. This important point is made, however, in Chapter 17 of the main MA publication (MA, 2005) which introduces the notion that cultural and amenity services are determined by *perceptions* of the environment, and that these perceptions are themselves the product of the knowledge system shared by the members of a community (MA, 2005: 458). One of the co-ordinating lead authors for the chapter on cultural services is again de Groot (MA, 2005: 455-476), and the chapter presents an expanded and developed version of the published framework, acknowledging six CS benefit categories (Table 2:8).

Table 2:8: Types of cultural service (MA, 2005: 457)

Immaterial benefits	**Example / Explanation**
Cultural identity	Shaping of value systems and economic wellbeing through society-nature interactions, influenced by factors such as ownership, ethics, and religion. Creation of identity through lifestyles and livelihoods associated with different ecosystem conditions, leading to cultural diversification.
Cultural heritage	Heritage relating to special landscape features which invoke a sense of connection to individual and collective historic roots. Features affect human social structures, ecosystem functions, and heritage values, and are affected by changes in human land-use.
Spiritual services	Provision of opportunities to experience spiritual connection both through personal reflection and organised religious experience. Reflected by spiritual values placed on biodiversity conservation and certain ecosystems, and through concepts such as 'unity', belief in non-physical (supernatural) beings, compassion, fellowship, sacred-symbolism, and ethics.
Inspirational services	Cultural expression through performing arts e.g. dance, drama, theatre, music; fine arts such as crafts, painting, sculpture, carving; design and fashion such as furnishings, textiles, architecture, symbols; media such as radio, film, television, internet, photography, marketing; and literature.
Aesthetic services	The result of a long evolutionary history, as expressed through certain human behaviour e.g. the use of plants and flowers for decoration, or the allocation of 'scenic routes'. Includes presence of negative perceptions amongst certain groups and cultures. Recognised to be understudied.
Recreation and tourism	Opportunities for rest, relaxation, refreshment, and recreation. Related to the aesthetic qualities and variety of landscapes.

A recently published paper further develops the MA (2005) definition of cultural services, and provides a definition of cultural services, as "…ecosystems' contributions to the non-material benefits… that arise from human-ecosystem relationships" (Chan *et al*, 2012: 9). It argues that the effectiveness of the approach is undermined by the conflation of services, values and benefits, and a failure to recognise the importance of different types of value, particularly relating to cultural services (Chan *et al*, 2012). The paper notes that *"…*spiritual, inspiration, and place values are not products of single kinds of experiences; rather these values are products of all manner of experiences associated with ecosystems (including metaphysical contemplation of organisms, processes, and sites)" (Chan *et al*, 2009: 13). It makes a valuable observation when pointing out that "…the 'classes' of cultural values/benefits/services that have been grouped together under cultural services are perhaps best understood as those that do not fit well in other sectors of ES research", and recommends

methodological approaches which employ a broader range of (non-economic) social-science tools and methods to identify benefits on site (Chan *et* al, 2009: 13-15).

However, the paper suffers from some inconsistencies which undermine certain of its contributions. Firstly, it suggests 'in the interest of conceptual clarity' that services, values and benefits should be distinguished from one another, advising that "…services are the production of benefits (where benefits may take the form of activities), which are of value to people" (Chan *et al*, 2012: 9). Since this statement is effectively saying that services are valuable benefits, it arguably increases rather than eases the aforementioned conflation between services, values and benefits. The second problem arises from the proposed redefinition of cultural services. Whilst the authors acknowledge that this broad definition may overlap with other services, they fail to articulate that their definition implies there is a potential for *non*-ecosystem contributions to capabilities and experiences. This view is upheld in a later statement which asserts that "…most of the cultural values/benefits/ services that have been grouped together as cultural services are best understood not as services, we argue, but rather as benefits that are produced not only through cultural services but also provisioning services, etc." (Chan *et* al, 2009: 14). This indicates a view of manmade products as non-ecological, which controverts the perspective of humans as integral to ecosystems.

The treatment of indigenous knowledge (as recommended by the MA, 2005) has been called into question by two authors (Hardy and Patterson, 2012: 76), who argue that this is "…seen as an externality that needs to be internalised into a 'western science style' analytical framework". These authors 'strongly assert' the importance of practicing methodological pluralism (echoes by Chan *et al*, 2012; Church *et al*, 2011) and stress the need to resist knowledge integration and imperialism in cross-cultural research.

2.3.1 Deconstructing the cultural services definition

Understanding this definition of cultural services may be aided by further clarification of the terms 'nonmaterial', 'benefit ', 'functional unit', the verbs 'obtain' and 'interact', and the word 'service'. *Nonmaterial* is the negative sense of the word 'material', which has been defined as "of matter; corporeal" (Thompson, 1998: 840). The word 'incorporeal' has been defined as "not composed of matter", and "having no physical existence" (Thompson, 1998: 689). *Benefi*t has been defined as "a favourable or helpful factor or circumstance" (Thompson, 1998: 120). A *functional unit* (two words) is "an individual thing… regarded as single and complete, especially for the purposes of calculation" which 'serves a function' (Thompson, 1998: 1530 and 548 respectively).

The term *obtain* has been defined as "to acquire, secure; have granted to one", whilst to *interact* is to "act reciprocally; act on each other" (Thompson, 1998: 940 and 709). Special mention must also be given to the meaning of the term 'service'. This word has multiple definitions, which include "the act of helping or doing work for another or for the community", "assistance or benefit given to someone", "employment or a position as a servant", and "the provision or system of supplying a public need" (Thompson, 1998: 1266). All these definitions reveal an underlying anthropocentric paradigm, through this depiction of ecosystems serving human needs, which is in opposition to the concept of ecosystems having intrinsic worth.

Using these definitions to develop a better understanding of cultural services, we may again observe a narrative which accompanies the concept. Ecosystems are individual self-sustaining units which are bounded (thus quantifiable) and which serve human needs. They are made of various living and non-living entities (of which one species are *homo sapiens*) and these entities act reciprocally on each other. Through this interaction, humans acquire or are granted 'something' which is favourable, helpful, and which is not composed of matter. This manifests itself through states such as spiritual, recreational, aesthetic, inspirational, educational (etc.), deemed to be *'cultural.'* Notably, the definition of cultural services phenomena as nonmaterial human benefits has parallels to the 'health-promoting behavioural responses' depicted by the information function. However, establishing the CS as a 'nonmaterial' phenomena is problematic, since as already asserted, the interaction of ecosystems and humans is a process which has no rigidly definable boundaries. At an anatomic level, all human states (behavioural responses) infer neurological and endocrinological reactions which are essentially physical in substance. Defining the phenomena as pure information (i.e. energy) would support the 'incorporeal' premise; however this would necessitate the omission of physical bodies from the definition, which would then undermine the whole cultural service concept.

The inclusion of *humans* within the definition of an ecosystem also creates conceptual difficulties which have implications for the study of cultural services. Ecosystems do, by definition, include both biotic and abiotic components. Whilst humans are perceived to be part of an ecosystem, then human buildings/ structures, technologies, and interactions with other humans would (so long as they inspire nonmaterial benefits) be included in the cultural service definition. The result of this is that potentially, nothing is excludable from the definition of a CS, and the 'common sense' view that the phenomena relates to 'nature' is defunct. We are thus presented with a range of conceptual issues which are relevant in a methodological sense.

2.4 UK National Ecosystem Assessment and cultural services

Following the Millennium Ecosystem Assessment, the UK government commissioned a scoping study (see Haines-Young and Potschin, 2008) followed by a full National Ecosystem Assessment for the UK (UK NEA, 2011). The findings of the UK NEA (described further below) were published during the latter stages of this study, and have been used to contextualise the synthesis chapter of the thesis. A helpful contribution from the scoping study is the 'ecosystem cascade' (Figure 2:2).

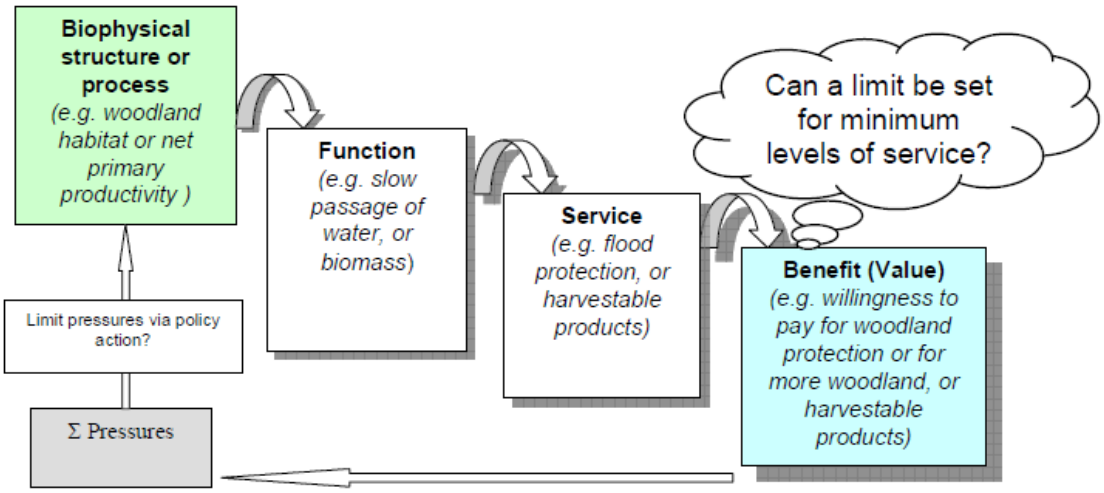

Figure 2:2: Ecosystem Service cascade diagram (taken from Haines-Young and Potschin, 2008: 7)

This diagram presents functions and services as being linked, and shows that ecological structures and processes ultimately produce benefits for people. The idea that information functions and cultural services are connected parts of the same process is a main tenet of this thesis. However, this diagram raises a question as to whether the flows between stages are actually unidirectional (as displayed) or cyclic (as discussed in Section 11.3.2).

As part of the preliminary work leading to the UK NEA, a corpus linguistic study was commissioned (Wild and McCarthy, 2010). This study utilises *ecolinguistics* theory to analyse words and phrases associated with ecosystems, and identify key collocates, positive and negative language use, and any associated connotations. It is hence associated with the constructivist approach embodied by this thesis, showing that the discursive attributes of documents are central in producing distinct understandings of the natural environment.. The study found that several words and phrases commonly used in ecosystem service literature are not widely understood in society as a whole, whilst others were used in different ways in specialised public, government and

academic corpora. For example, the word 'cultural' was usually associated with cultural heritage, but was also eight times more likely to be associated with the phrase 'cultural asset' in government documents than in public and academic, showing that "… culture is seen as a commodity" (Wild and McCarthy, 2012: 33). Interestingly it did not appear to be associated with the collocate 'services', which could indicate that the cultural services concept is not yet in common use.

Findings from this corpus study fed into Chapter 16 of the UK NEA; i.e. that devoted to cultural services (Church *et al*, 2011: 633-692). This chapter opens by stating that "ecosystem cultural services are the environmental settings that give rise to the cultural goods and benefits that people obtain from ecosystems" (Church *et al*, 2011: 634). Hence we are presented with a perspective which places cultural *services* in the environment external to people, and cultural *good and benefits* as the part of the phenomena which is 'obtained' by people. Whilst the term 'non-material' is not used, this definition is similar to that provided by the Millennium Ecosystem Assessment (2005) which is effectively 'benefits obtained from ecosystems'- a definition critically assessed through this thesis. The aim of UK NEA Chapter 16 was to,"…advance the understanding of ecosystem services by developing an analytical framework for assessing cultural services and goods" (Church *et al*, 2011: 639) an interesting statement which appears to converge with this thesis, by acknowledging that cultural services are fundamental to our understanding of ecosystem services.

As per this study, the chapter recognises the crucial need to develop a methodological and theoretical approach for assessing cultural services, and so aims to develop an interpretative framework which "… reflects our understanding of culture as a dynamic and transformative process involving the enormous range of social communications and social practices that enfold nature, places and landscapes into everyday life" (Church *et al*, 2011: 643). The authors take a needs-based approach which relates the importance of cultural services to the satisfaction of human needs contributing to a 'good life'. To this end, the 'Human-Scale Development Matrix' (H-SDM) (Max-Neef, 1992) is applied, and is stated to be preferable to theory provided by Maslow (1954) which is mistakenly interpreted to be a *rigid* hierarchy of human needs (Church *et al,* 2011: 644- see also Section 4.1.4). The H-SDM inspired perspective on cultural services entitled 'environmental settings for interacting and human existence needs for being having and doing' (Figure 2:3) denotes physical settings as providers of cultural services, related to 'doing' (i.e. activities) and 'having' (i.e. institutions). This view is recommended to "…provide a conceptual approach for examining systematically the extent to which cultural ecosystem services and different kinds of cultural 'good'… are valued because they are able to satisfy a substantial number of fundamental human needs" (Church *et* al, 2011: 644).

Figure 2:3: A Human-Scale Development Matrix (H-SDM) influenced perspective on cultural services (taken from Church *et al*, 2011: 647)

However, there are issues with this approach. The authors concede that there to be no empirical research which tested this proposition, and use of the H-SDM in the UK NEA could not be evaluated empirically, and was consequentially restricted to use as a 'thought experiment', and as a means of structuring the extensive literature review. Furthermore, it is explained that the needs discussed in the matrix are not 'neatly separated', and as such, "…it will often be hard to identify which need a particular satisfier is addressing"(Church *et al*, 2011: 644-645). Subsequently, whilst the figure which developed out of the H-SDM operates at a higher level of detail than prior EsA literatures, it arguably suffers from the same demarcation and commensurability problems which hampered the aforementioned conceptualisations of information functions and cultural services. The perspectives offered by this chapter and the UK

NEA chapter on health values are further discussed in relation to thesis findings in Chapter 11.

2.5 Synthesis

2.5.1 Common themes and discourses

Similarities have been observed between different published depictions of the information function and cultural service concepts. Table 2:9 shows versions of IF/CS subcategorisation, and reveals a convergence of themes within separate literatures.

Table 2:9: Subcategorisation of cultural services (as per published literature)

	INFORMATION FUNCTIONS	CULTURAL SERVICES	INFORMATION FUNCTIONS	CULTURAL SERVICES	CULTURAL GOODS
	de Groot *et al*, 2002	**Alcamo, 2003**	**Chiesura, 2004**	**MA, 2005**	**Church *et al* 2011**
1.	Science & education	Knowledge systems Education values	Norms & values		Education and ecological knowledge
2.	Aesthetic information Artistic	Aesthetic values Inspiration	Freedom	Aesthetic appreciation Inspiration	
3.	& cultural	Cultural diversity Sense of place Social relations	Cultural Identity Social contact	Cultural identity	Heritage
4.	Spiritual & historic	Cultural heritage Spiritual & religious value	Ideals Self-development	Heritage values Spiritual services	Religious and spiritual
5.	Recreation	Recreation & tourism	Recreation Psycho-physical health	Recreation & tourism	Leisure recreation and tourism Health

A number of cross-literary discourses were also identified (Section 3.3.5) which showed the supporting frameworks of knowledge inherent to different accounts of ecosystem services (Figure 2:4). The Ecosystem Services discourse is a current development, and has received an international response through publication of the Millennium Ecosystem Assessment (MA). It has recently been applied at a UK level

through the UK National Ecosystem Assessment (UK NEA, 2011). The initial de Groot framework has created an approach which is promoting a shift in our understanding of the importance of ecosystem characteristics and processes to human wellbeing. One of the themes permeating ecosystem services approach (EsA) concerns the *modern era*, the digital age, increasing population density, use of technology in agriculture, and urbanisation. This is associated with the fragmentation of intellectual specialisms, and subsequent need for interdisciplinary approaches. The complexity of society requires the reification of categorised information (such as EsA) through computerised systems and databases, but at a potential loss of subtler aspects of social life and connections with nature.

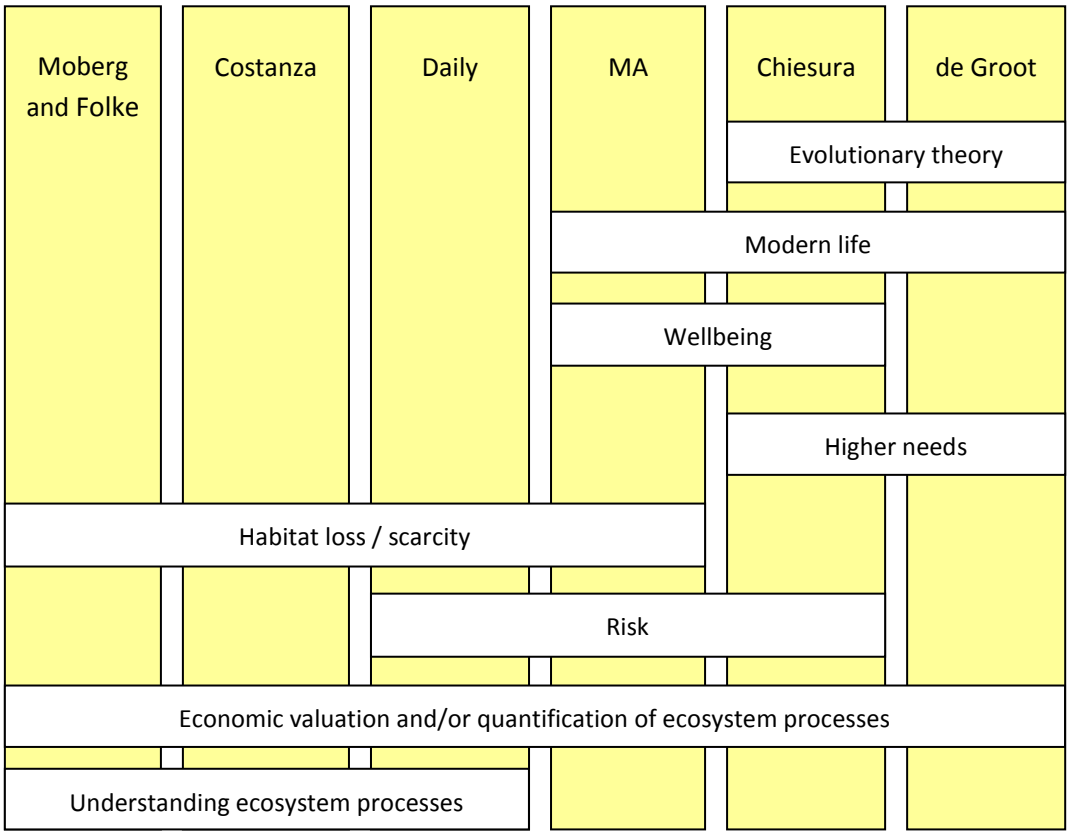

Figure 2:4: Schematic to show discourses perceptible in main information function and cultural service texts

The greater control and management options available through digitalisation are in contrast to the *risk* theme, which also pervades EsA discourses. This recognises that we no longer live in a world in which we believe humans are the masters- the dominating force, but rather that we have to accept we cannot totally control nature, and must make effects to live in greater harmony with it. Ecosystem services approaches can support a conceptual shift from viewing nature as a resource (to be utilised) to nature as a provider of crucial life-giving processes (to be protected and

maintained), and indicates a new found respect. Here we may observe a *paradox* within EsA: ecosystems as something rare and precious versus nature as a dangerous and overwhelming force. Within this narrative is the question of where society sits within the ecological biosphere, and what constitutes *naturalness*. EsA is inconsistent in this, sometimes placing society firmly outside of ecology, sometimes viewing human systems as intrinsically ecological. Tensions may be observed intermittently between *anthropocentric orientation*, and concepts of *intrinsic* worth. Alongside these themes is the discourse of *scarcity*. Graphic media accounts of species loss, landscape decline and natural disasters link with the increasing drive towards protection of what exists, and a quest for knowledge of what constitutes the good life. Questions of *health, wellbeing* and *quality of life* represent a further narrative which embellishes this subject.

The overriding theme revealed by EsA literature is however the continuing primacy of the neo-classical *capitalist economic system*. Despite allusions to intrinsic value and alternative (indigenous) knowledge systems, ecosystem services approaches still represent a conceptual framework to translate life and the laws of nature into data suitable for input into a free-market economic system.

Reference to natural elements in terms of 'capital', and the continuing tendency to *quantification* demarcate this approach at a fundamental level. Notably EsA relies on *expert knowledge,* and uses terms which are unfamiliar in everyday society. The specialist knowledge required to comprehend the conversion of ecological processes into economic values thus consigns this approach to academic and specialist practitioner circles. However, therein lies a substantial source of tension; namely the conflicting *epistemologies* inherent in an approach which attempts to be all encompassing. Particularly in the IF/CS discourse, we may observe narratives born of a realist ontology trying to accommodate esoteric phenomena. Additionally, issues which have existentialist orientation such as the sacred-symbology of ecosystems, aesthetic ideals, and higher needs are displayed alongside structuralist themes of social norms, cultural identity and knowledge systems. Further tension is created by the citation of biocultural and evolutionary theory in an effort to explain the existence of IF/CS. It is observed that the concept of 'rational man' which is fundamental to mainstream economics does not necessarily correspond to the view that humans may be driven by deep biological and evolutionary drives.

With the exception of discourses of risk, habitat and ecosystem processes (which were initially perceived to related to provisioning and regulating services rather than cultural services), discourses identified in literature are explored further in Chapter 3.4.3. Nonetheless, it is acknowledged that there are multiple, competing meanings of the

term 'ecosystem service' (Boyd and Banzhaf, 2007: 616). Similarly in relation to the information function concept, it is acknowledged that the term 'ecosystem function' has been subject to varied, and sometimes contradictory interpretations (de Groot *et al*, 2002: 394). Furthermore, what is claimed to be a 'benefit' in one spatial and temporal context may differ from another, and as such, understanding the *context* of perceived ecosystem-related benefits is recommended to be "…as important as knowledge about the structure and dynamics of ecological systems themselves" (Haines-Young and Potschin, 2009: 9). Subsequently the notion of 'ecosystem services' is an evolving concept (Fisher *et al*, 2009), which serves multiple context-specific classification systems (Fisher and Turner, 2008) that are necessary to make sense of the 'messy world' which we inhabit (Costanza, 2008: 350).

2.5.2 A summary of key points

This literature search reviewed the principle documents relating to ecosystem function and service frameworks. These were the Ecosystem Services Typology or EST (de Groot *et al*, 2002) which presented the information function concept, and the Millennium Ecosystem Assessment or MA (MA, 2005) which presented the cultural service concept. These frameworks were designed to enable the development of effective policy and ecosystem management procedures, through the quantification and assessment of ecosystems as 'functions' and 'services'. Uptake of the EST and MA frameworks has been extensive, with the latter emerging as a highly influential international document accessed by governments and major non-government organisations (NGOs), such as through the UK National Ecosystem Assessment (Defra, 2007 a; UK NEA, 2011).

Broadly speaking, literature presents the term 'function' in reference to the *capacity* of an ecosystem to provide a phenomena, and the 'service' concept to refer to human *benefits* received as a result of this. The development of both terms had been strongly influenced by a single author, Rudolph de Groot, whom led the work for both the EST and the MA chapter on cultural services. Current use of the two terms in journal papers is autonomous and synonymous, that is, both terms do not present in the same literature, but both are used to refer to the same phenomena. However, repeated readings and reflections upon the terms reveals that both relate to *different parts of the same process*. However, the concepts themselves are evolving, and the diversity of contexts and purposes where they are applicable have influenced different interpretations of their meaning.

Both concepts are identified as having associated narratives. The information function relates to an ecosystem which has its own intrinsic value; an ecosystem which contains

and produces 'information' received and experienced by people; an ecosystem as a point of reference. Human health may be improved through the opportunities afforded by this ecosystem, but this version of health perspective may be different from the current popular Western biomedical model of health. Cultural services relate to benefits accrued from ecosystems which serve human needs; ecosystem made of biotic and abiotic entities; ecosystems which provide opportunities for interaction. Nonmaterial benefits which result from interacting with ecosystems may ultimately manifest as cultural phenomena including religion, recreation, art, and education; and the incorporeal content of these is dependent on the reader's philosophical viewpoint.

As previously stated, literature which provides primary results from information functions and cultural services studies specifically is extremely limited. Subsequently there is a profound lack of theory regarding the IF/CS as a phenomena. The aforementioned framework documents cite evolutionary, higher needs, and wellbeing theory as implicated in the manifestation of IF/CS, but these theoretical positions are neither discussed nor referenced. Consequently a number of conceptual problems inhibit the current understanding of the information functions and cultural services phenomena, causing complexity which has resulted in the omission of cultural services and information function ecosystem approach studies (Rodriguez *et al*, 2006; Boyd and Banzhaf, 2007: 625; Fisher *et al*, 2009: 644).

The difficulties associated with employing the information function and cultural services terms may, it is observed, be related to problems of *characterisation*. Sub categorisation of the IF/CS differs subtly between documents, and the rationale for grouping is not explained. Current definitions fail to clarify how the phenomena relates to humans as individuals, as groups, and as societies. The 'fit' of the IF/CS with other framework function/ service categories is unexplored, despite there being significant epistemological and ontological differences inherent to the framework. Furthermore, a number of unarticulated assumptions are made by the original frameworks, such as the ability to quantify IF/CS, the commensurability of IF/CS quantification with other function/services, and the suitability of a reductionist framework to encapsulate what is ultimately a complex psycho-social phenomena.

3 Methodology

This chapter follows the initial literature review (Chapter 2) which was conducted in order to clarify the remit of the information function and cultural services phenomena. This review provided a foundation for epistemological reflections, and an overview of aspects of the cultural service concept which could benefit from improvement including the naming of the phenomena (e.g. is it a function or service; is it *cultural*); inconsistencies in subcategorisations of the service; the absence of theory regarding *processes* of cultural services creation; questions as to how the service relates to individuals, groups and society; and questions as to the fit of cultural services with other services in the MA framework (2005). These observations led to the development of the thesis aim, and subsequently a set of research objectives and indicative methodology. To aid legibility, the remainder of the thesis refers to the studied phenomena as 'cultural services'; the term employed by the Millennium Ecosystem Assessment (MA, 2005).

3.1 Thesis research questions, aim and objectives

The review of ecosystem services literature led to an overarching research question namely 'what are ecosystem cultural services?' This question and issues identified in Section 2.5 provided a 'conceptual organisation' which, accounting for complexity and contextuality (Stake 1995: 15-34), led to subsidiary research questions:

1. How are cultural services defined?
2. Do academic definitions fit the phenomena observed in the field?
3. How might the characterisation of cultural services be improved?

These questions influenced an aim which evolved throughout the study, developing into the following thesis aim: to deconstruct, explore, clarify and enhance the academic concept known as an ecosystem cultural service.

The objectives of the thesis developed in accordance with the aim, and are as follows:

1. To review a range of published literature relating to cultural services
2. To identify cultural services-type phenomena occurring in a multi-habitat site
3. To identify contextual circumstances influencing the cultural services of a site
4. To review institutional arrangements organising access to the cultural services of a site
5. To review the role of discursive resources in representations of the cultural services of a site

Due to the shortage of cultural services studies and the immaturity of this academic concept (which first appeared in literature in 1992) the study has adopted an exploratory approach, utilising a flexible research design. Fixed design strategies such as those employed to economically value (e.g. Egoh *et al*, 2007; Havstad *et al*, 2007; Whelan *et al*, 2008; Martin-Lopez *et al,* 2009), or survey the phenomena (e.g. Chiesura and de Groot, 2003; Chiesura, 2004; Agbenyega *et al*, 2009) were rejected. The reason for this is that fixed design studies, "…call for tight pre-specification" before data collection (Robson, 2002: 87), but this was not possible given the theoretical gaps in conceptual representations of the cultural service. These fixed design studies reflect an underlying realist ontology which initially informed the study. However, since cultural services are considered to be a social construct, this indicates the study should focus on how cultural services are constructed and translated through academic literature, policy documentation, and economic valuation. The conceptual implications of this position indicates that an epistemological discussion (Section 3.2), and initial conceptual framework (Section 3.2.4) are helpful to elucidate the starting position of the thesis. The practical methods for data collection and analysis follow (Section 3.3) and the methodology chapter finishes with a discussion of quality in qualitative social science research (Section 3.4).

3.2 Epistemological position

The identification of a suitable method for studying the cultural services of ecosystems requires an epistemological discussion of the *type of knowledge* that can be gained with the available resources. As already described, the information function can be regarded as the *capacity of ecosystems* to provide a focus for humans to refer to. The reference process is said to contribute to human health, but exactly what constitutes 'health' is not specified. Cultural services are regarded to be the *nonmaterial benefits* humans obtain through interaction with ecosystems, and these benefits (as endpoints) have been categorised. Closer examination of the categories reveal that they comprise an assortment of states, individual and collective behaviours, social institutions, and economic sectors; some of which are *supported by* or *lead to* the creation of artefacts. A point of questionable validity is however, whether these states, processes, institutions and activities are indeed *nonmaterial*.

3.2.1 Position on nonmateriality

The question of nonmateriality is observed to be linked to the ancient and on-going debate of 'duality', also recognised under the headings of mind-body, nature-nurture, gene-environment and structure-agency. Cultural services phenomena could be said to be nonmaterial if we understand the mind to be separate from the body. This

dualist perspective would entail focusing on the 'energetic' properties of life, and may extend to a belief in spiritual substance. This issue was addressed by Descartes in a text on the incorporeal mind (1639) which argued that although the universe could be accounted for by mechanical and mathematical laws, the rational soul was superfluous to these explanations and must therefore be distinct from materiality. This model persists socially through popular biomedical science which, "…separates the mental from the somatic" (Engel, 1977: 196); and through behaviourist approaches which maintain a focus on central processing mechanisms (Harre cited in Smith, 1996: 145). However, if we perceive mind to be resultant or inseparable from physical processes, then cultural services cannot be immaterial. This monist perspective follows Spinoza (1677) who claimed that mental functions arise from complex physical processes, and as such soul and body are one. This line of reasoning is also present in on-going neurological research, which reasons that, "… the richness of our mental life- all our thoughts, feelings, emotions, even what we regard as our intimate self- arises exclusively from the activity of little wisps of protoplasm in the brain" (Ramachandran and Hirstein, 1997: 429).

These perspectives are combined through theories which introduce the notion of an ensouled body ('empsychos'), comprised of biological matter but ordered by certain *organisational principles* (Aristotle, 330 BC), or alternatively, of knowledge based on experience which is interpreted by the mind via *a priori* categories of understanding (Kant, 1781). These perspectives pave the way for an understanding of the human soul or mind via organising patterns or behaviour, linked to the physicality of the body, since"…the brain is set up to run through a body, (thus) ideas and language can't directly fit the world but rather must go through a body" (Lakoff, 2011, 72). The search for a 'soul' (or a least, an autonomous free-willed self) is on-going in the modern age, through work on so-called 'token identities'. This maintains that whilst minds cannot exist without brains, mind *states* and brain *states* are not systematically correlated; giving credence to, "…an autonomous psychological account of human thought and action" (Gross, 2010: 898). This perspective is also supported by the discursive psychology view, which advocates, "the study of the intentional use of symbolic systems of various kinds by *active and skilled human beings* in public and private contexts, for the accomplishment of various tasks and projects, jointly with others" (Harre cited in Smith, 1996: 145-146) (italics not in original text).

In summary, whilst the account of cultural services as a nonmaterial phenomena exemplifies a philosophically valid *dualistic* position, the same premise is not supported by current bio-neurological evidence. It is concluded therefore that the nonmaterial label is unhelpful, and should be replaced by a more lucid and tangible account of cultural services which incorporates the physical aspects of human

experience. Furthermore, it can be argues that those perspectives committed to the study of 'organising principles', and 'autonomy' in psychological process will offer the most fertile ground for the study of cultural services. In order to distinguish this as relevant to *ecosystems* however, the study must be sure to connect these internal principles to the external environment in some way. A living human being will always retain a connection to the environment, even without sensory stimulation, through processes such as respiration. Even so, because experiences of ecosystems are related to sensory stimuli, an understanding of the human sensory system should aid the conceptualisation of the person-ecosystem interaction process which contributes to cultural services.

3.2.2 Setting the parameters of sensory experience

Most considerations of sensory experience focus on exteroceptors, which tell us about the external environment, and encompass the five traditional senses of vision, audition, olfaction, gustation, and cutaneous sense (Sherrington, 1906; cited in Gross, 2010). However, in addition to these are interoceptors, receptors which relate to the internal environment, e.g. those which process information regarding levels of oxygen, carbon dioxide, or blood glucose transfer. Lastly, proprioceptors tell us about the position and movement of the body through space, such as through kinaesthetic sense (movement of limbs, joints and muscles) and vestibular sense (the response to gravity, or head movements) (Gross, 2010: 79). In practice it can be difficult to isolate exteroceptor, interoceptor and proprioceptor responses as separate elements of phenomena such as that of cultural services. For example, in the experience of forest walking, exteroceptor senses may provide visual information, interoceptor senses may incur a response to the composition of atmospheric air, and proprioceptor senses may provide information relating to walking movement. All these would combine to create a 'total experience', yet one which is not solely attributable to typical 'five-senses' information from the external forest ecosystem.

Whereas an information function could, it is argued, be *theoretically* confined to exteroceptor information (in line with the 'common sense' view of this as a selective 'nature-related' phenomena), as has already been established, an information function cannot be external 'sensory information' only. Since an information function must be received in order for it to exist, it would then share 'experiential space' with information from the other sensory receptor types. To study isolated sensory information types would require an individual to be cognisant of each separate input involved in their experience, and be able to communicate this effectively. This indicates that the central feature of such a study would rely on the *communication of subjective experience.*

A question is raised over whether it is beneficial to isolate and exclude certain sensory inputs from the cultural service concept. Whilst the recognition of exteroceptor information is obvious, other forms may also be important. For example interoceptor information may be of relevance if related to culturally significant local herb, or a revered area of high altitude. Proprioceptor inputs, such as the feel of a hillside gradient, could be an important factor in cultural services experiences. Since these sensory inputs could affect any subsequent notions of value, it is argued that they should not be discounted from the study. Indeed, the inclusion of interoceptor and proprioceptor stimulation are noted to correspond to the notion of cultural services as a *process of interaction*, since activity and material artefacts (observed concurrently) provide significant inputs in the creation of cultural services experiences. If humans are considered part of an ecosystem, then even technologically developed items (e.g. mountain bikes) may be deemed to comprise a valid part of the interaction process, as these provide a means of 'unlocking' certain experience-types.

The importance of physical activity has been noted by theorists in the disciplinary area of environmental psychology. Here it has been observed that "…perceiving is not the reception of sensory stimulation; it is a mode of activity by which the individual becomes aware of environmental features. Seeing is normally a collaborative process of acting and of detecting structure, and for this reason, visual experience, like tactile experience, is rooted in the activity of the body." (Heft, 2001: 177) This approach, which conceptualises perception as a 'dynamic exploratory system' which encompasses detection and action, is discussed further below. A minimum level of stimulation is required in order for sensory information to 'register', but these thresholds are said to vary from individual to individual, and for the same individual at different times depending on physical state and motivation, (Gross, 2010: 80). Influences on individuals' sense perception have been grouped into categories of personal, cultural and physical factors (Table 3:1).

Table 3:1: Influences on perception (after Gifford, 2002: 26)

Influence type	**Description**
Personal	Variability in perceptual abilities, gender, training/ level and type of education, familiarity and with setting and whether person likes the setting
Cultural	Perceptual difference attributed to discrepancies amongst the perceptual environments that various societies have developed in (known as the 'carpentered-world hypothesis)
Physical	The level of homogeneity in a scene resulting in a lesser or greater influence of personal factors over environmental factors.

Since cultural services are *directly* related to ecosystem-derived information, a basic understanding of the points of entry for this information is helpful. In a simplified way, sensory information is received by sense organs, which contain sense receptors. These act as 'transducers'; taking particular energy types, and converting these into electrical nerve impulses ready for interpretation by the brain (Table 3:2).

Table 3:2: Sense organs, sense receptors and brain areas for the major sense modalities (from Gross, 2010: 79)

Sense modality	**Sense organ (accessory structure)**	**Sense receptor (transducer)**	**Brain area**
Vision (sight)	Eye (in particular, the lens)	Rods and cones (in the retina). To brain via optic nerve	Occipital lobe striate cortex, extrastriate/ prestriate cortex)
Audition (hearing)	Outer ear (pinna), middle ear (eardrum/ ossicles), inner ear (cochlea)	Specialised hair in organ of Corti (in cochlea)	Temporal lobe(via auditory nerve)
Gustation (taste)	Tongue (taste buds and papillae), ridges around the side of the tongue	Specialised receptors in taste buds connect with sensory neurons	Temporal lobe (via gustatory nerve
Olfaction (smell)	Nose (in particular the olfactory mucosa of nasal cavity	Transducers in the olfactory mucosa. To brain via olfactory bulb and olfactory tracts.	Temporal lobe and limbic system (
Skin/cutaneous senses (touch)	Skin	Approx. 5 million sensors of at least seven types, including Meissner's corpuscles (touch); Krause end bulbs (cold)	Parietal lobe (somatosensory cortex) and cerebellum
Proprioception (kinaesthetic and vestibular senses)	Inner ear (semicircular canals, vestibular sacks)	Vestibular sensors (otoliths), tiny crystals attached to hair cells in the vestibular sacs which are sensitive to gravity	Cerebellum (via vestibular nerve)

Notably it is asserted that the environment offers more information than humans can take in through the senses, and that an active selection process occurs which involves scrutinising the new, and habituating against the ordinary or familiar in order to manage sensory inputs (Gifford, 2002: 22). The ease by which a setting is recognised has been termed 'legibility'; a process aided by perceptible elements of legibility: paths (i.e. routes and walkways), edges (i.e. non-travelled lines e.g. shores or cliffs), districts

(i.e. areas having a particular 'character'), nodes (i.e. well-known points) and landmarks (i.e. easily viewed elements of any scale), (Lynch, 1960: cited in Gifford, 2002: 32). Furthermore, it is held by some that the world is comprised of diverse (largely undiscovered) forms of energy, and that meaningful exchanges of information between organisms and environments can occasionally exceed the known capacities of the sensory and motor systems (Rao and Palmer, 1987; cited in Gross, 2010). This world, 'hidden' from normal sensory experience has been named 'noumena', but has been regarded as outside the realm of valid philosophical or scientific endeavour (Kant, 1781).

The discipline of environmental or ecological psychology is characterised by a plurality of approaches, based around a 'transactional-contextual' perspective. This centralises the inseparable connectivity of person-environment relationships (Bonnes and Secchiaroli 1995: 157). A related discipline, conservation psychology, is concerned with the "scientific study of the reciprocal relationships between humans and the rest of nature, with a particular focus on how to encourage conservation of the natural world" (Conservation Psychology). Environmental psychologies are marked by a study of phenomena in the context in which it occurs, and embrace a number of research methods, but most techniques centre on self-reporting methods whereby perception is filtered through language (Bonnes and Secchiaroli, 1995: 40). This is asserted to provide an interpretation of phenomena which is not "… on the one hand too 'objectivist' and thus, biased by 'environmental determinism', and, on the other, too 'subjectivist'… exclusively centred on the psychological phenomena in individualistic and intra-psychical terms, with scarce interest in extra-individual or 'contextual' factors in a collective or physical sense." (Heft, 2001: 15). Hence, it is surmised that the theory underlying cultural services is fundamental in understanding how we experience (and come to value) the natural environment. Form the above it can be argued that cultural services experiences are not dependent on sensory input alone, but that it also relates to individual differences and modes of activity. Henceforth, a research method informed by environmental psychology theory will seek to describe both the communication of subjective experience and the environment.

3.2.3 Psychological theory informing approach

Approaches to the study of human behaviour may be situated on a spectrum of the influence of intrinsic and extrinsic factors; otherwise known as the 'nature-nurture' debate. These range from extreme nativism perspectives, which propose that how we respond to the environment is innately programmed, to extreme empiricism, which advises that this is determined through cultural and social processes (Figure 3:1).

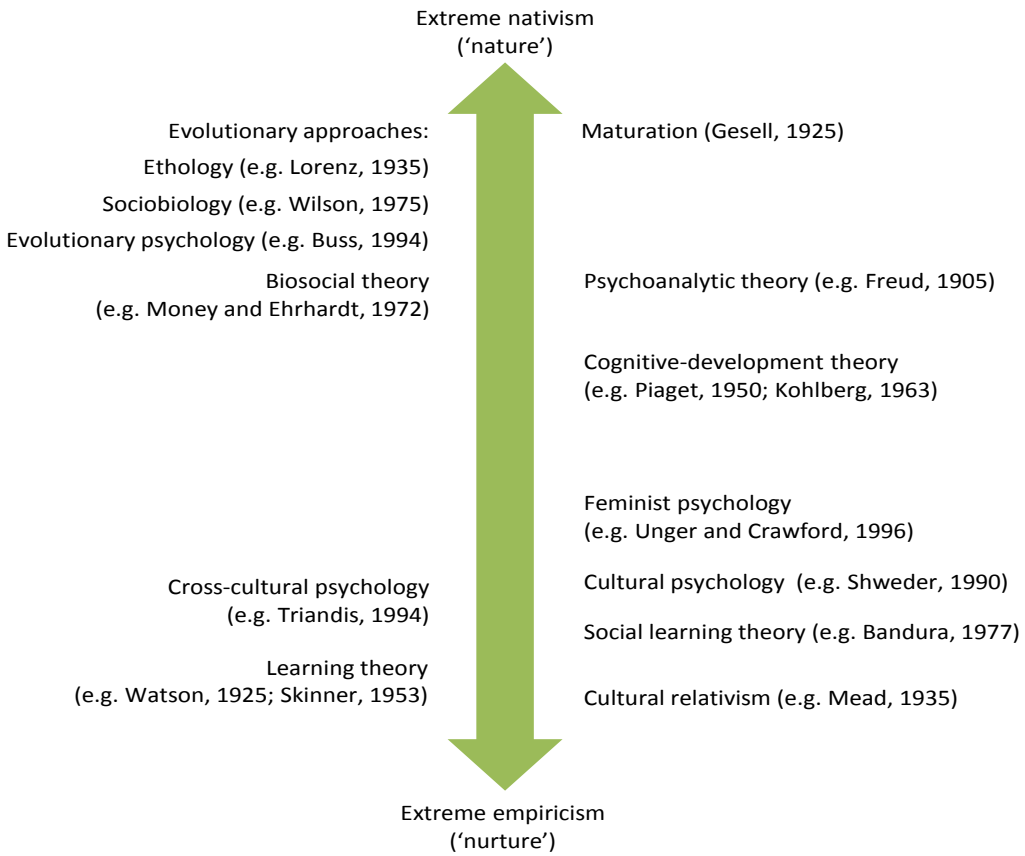

Figure 3:1: A continuum representing the position of various psychological (and other) theories on the nature-nurture debate (taken from Gross, 2010: 905)

The theoretical position taken by a cultural services study is particularly important, since this phenomena is intimately related to the relationship between people and their environments. As such, it is helpful to understand a range of positions in order to distinguish the perspectives embodied by research (Table 3:3). Whilst each of these approaches may have a valid contribution to make to cultural services study, the need to focus and set study boundaries requires selection of the most appropriate approach, given what is already known of the phenomena. Accordingly, this study assumes a position of social constructivism, whereby all knowledge is regarded as context specific.

Table 3:3: Theoretical approaches in psychology (after Gross, 2010: 16-35)

Theoretical approach	**Short simplified description**	**Example of theorist**
Evolutionary	Humans have adapted to cope with life as a hunter gatherer. Evolutionary selection has shaped human behaviour, as the timescale of human history has been too short to have produced significant change. The role of mind mediates between genes and behaviour. Nature or nurture is a false dichotomy.	Wilson, Dawkins
Behaviourist	Emphasises the role of environmental factors (external stimuli) in influencing behaviour. Focus is on learning as conditioning. Excludes innate or inherited factors. Advocates the study of observable behaviour, modelled on natural sciences.	Skinner, Watson
Psychodynamic	Active forces within the personality motivate behaviour, especially unconscious wishes, thoughts and memories. Consciousness represents the 'tip of the iceberg', and most thoughts are preconscious (not accessible at that moment) or unconscious (totally inaccessible).	Freud, Jung
Humanistic	Belief in free will and the ability to choose action. Individuals interpret themselves and the world, and thus are able to act through choice. People are progressive or 'growth-motivated'. Advocates the study of behaviour via subjective experience.	Maslow, Rogers
Cognitive	Centres on role of cognitive processes in behaviour. Use of analogies and metaphors to describe constructs within the brain, e.g. that of an information processing system. Study of 'codes' to understand representations used by the brain, i.e. code is a symbol of the original stimulus.	Ellis, Carver
Social constructionist	Knowledge is historically and culturally specific. Enquiries must extend beyond the individual, and take into account socio-political and economic realms to understand behaviour.	Gergen, Moscovici

Deterministic approaches (i.e. psychodynamic, evolutionary and behaviourist theories), imply that responses to environmental inputs present at a level which is beneath human consciousness. The psychodynamic position is rejected since there is no literature to support the position that cultural services are predominantly

motivated by unconscious processes. However, the *symbolism* of nature is regarded as interesting, and potentially could be explored through a Jungian perspective (although this is not taken up through the current study). Evolutionary theory has been recommended to have explanatory power regarding cultural services phenomena (see literature review Section 0 and 4.1.1). Whilst this is accepted to be a strong position, it is not selected since on-going research shows that genes both influence and *are themselves influenced by* environmental circumstances (Chiappedi *et al*, 2010; Hanscombe *et al*, 2010). Elements of the behaviourist approach, such as the recognition of 'behavioural responses' are insightful. However the approach is not selected based on the omission of the role played by socialisation, and the problems raised by reductionist and causal methods which link responses to specific stimuli.

A social constructivist approach adopts a critical stance towards 'taken for granted' knowledge, and assumes that 'knowledge' (such as regards cultural services) is sustained by social processes (e.g. arts, humanities, science, education, or political processes) which make knowledge more accessible to some people more than others. In turn this constitutes a source of social influence in both active (e.g. persuasive communication /obedience), and passive forms (e.g. social facilitation/ conformity). The work of Foucault regarding discursive formations (2002) and power (1994) is understood to be effective in developing this line of thinking further. The concept of a social norm (Turner, 1991; cited in Gross, 2010), the work of Goffman (1959/ 1990) on the presentation of self in everyday life, and the self-actualisation theory put forward by Maslow (1954) are all of interest to the understanding of cultural services behaviours in semi-natural environments. Hence this study adopts a pluralist position focused on a social constructivist account, informed by certain aspects of cognitive theory. However the guiding principles behind this are taken to be humanistic, that is, that people are capable of choice in behaviour which may contribute towards a progressive increase in self-awareness.

3.2.4 Development of an initial conceptual framework

Building on the physiological theories and range of experiences described, an initial conceptual framework was developed to guide the study (Figure 3:2).

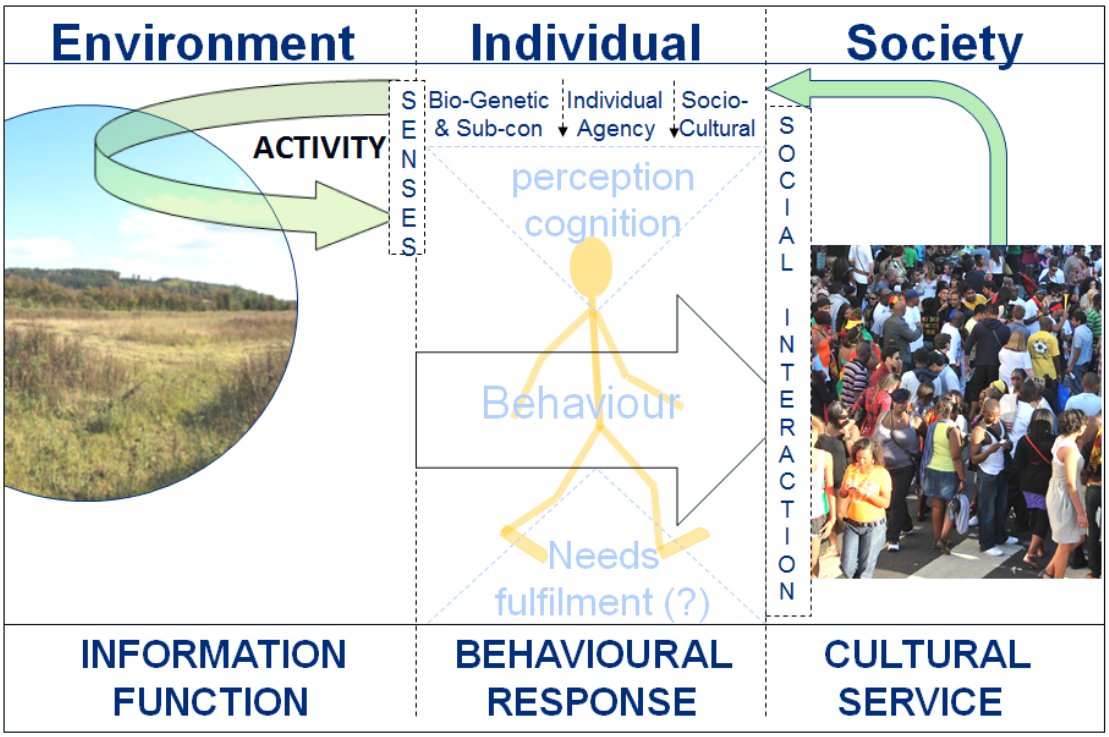

Figure 3:2: Schematic of the initial conceptual framework used to understand information functions and cultural services

This conceptual framework separates the concept of an 'information function' from 'cultural services', through the inclusion of a further stage termed a 'behavioural response'. This term is used in its broadest sense, to refer to "any physical or psychological reaction of an organism to a stimulus" and may include "behavioural, muscular, glandular or neurophysiological reaction caused by stimulation of a sensory receptor" (Oxford, 2006: 652). The introduction of this stage highlights that individuals (and their responses) are the intermediaries between environments as creators of sensory information, and societies as users of such information, and as such, is a perspective routed in cognitivism. However, no stage of this conceptual framework has rigidly definable boundaries (shown by dotted lines) and the varying amount of influence of each variable on individuals was observed to be related to the disciplinary stance taken. Subsequently, this conceptual provided a starting point, and was open to modification throughout the study.

Regarding the 'information function', it is held that sensory information arises from the environment, which is made up of biotic and abiotic elements. People are not able to respond to the full information available, but can receive a proportion of this through sensory systems. In the conceptual framework, the reception of this accessible portion is termed information function. An individual's activity, the reception of sense data, and the mental constructs or 'schemata' which allow for legibility comprise an interaction process which 'converts' the information function into a response. Regarding the 'behavioural response', an individual's response is taken to be a 'total experience', i.e. it includes information from interoceptor, exteroceptor and proprioceptor systems. There are important biological, endocrinological, neurological, genetic and unconscious components to this total experience; however these deterministic features which are beneath conscious awareness do not form part of the current study. These elements, along with individual agency and sociocultural influences, combine to result in perception and cognition relating to the environment. This may result in individual needs fulfilment/ personal benefit and behaviour/action. Regarding 'cultural services': Individual behaviours may take the form of direct or indirect social interactions. Direct social interactions comprise any person to person communications (e.g. speech, dance, sport etc.). Indirect social interactions include the creation of artefacts which are then introduced to society (e.g. paintings, literature, and manufactured items). Within this conceptual framework, these social interactions are termed a cultural service.

It is observed that information function/ Response inspired social interactions may become embodied through the practices of institutions and other socio-cultural systems. This reification process then becomes a form of active and/or passive social influence, which creates a wider sociocultural environmental context that individuals are then submerged within. Whilst the process of cultural services creation does not form part of the current study, the sociocultural context which influences individuals engaged in cultural services processes is included in the methodological approach. The conceptual framework does not tackle the issue of time, since the development of information function into response into a cultural service is observed to be a temporally variable process. However, time is observed to be an important variable and can be accommodated by the method. This study henceforth focuses on the communication of individuals' subjective experience relating to a specific type of environment, the context for that experience, and the theorisation of this process as a social construction.

3.3 Method

3.3.1 Research design

This exploratory study employed a flexible design and employed mixed qualitative methods which were broadly of a constructivist orientation (Figure 3:3). The exploratory strategy was appropriate given the lack of prior cultural services studies, whilst the flexible approach was selected in order to allow the thesis to evolve, develop and respond to new findings as these emerged (Robson, 2002: 5). Qualitative data has been collected since this provides an opportunity to gain deeper insights into the meaning, quality and texture of experience (Willig, 2008: 8).

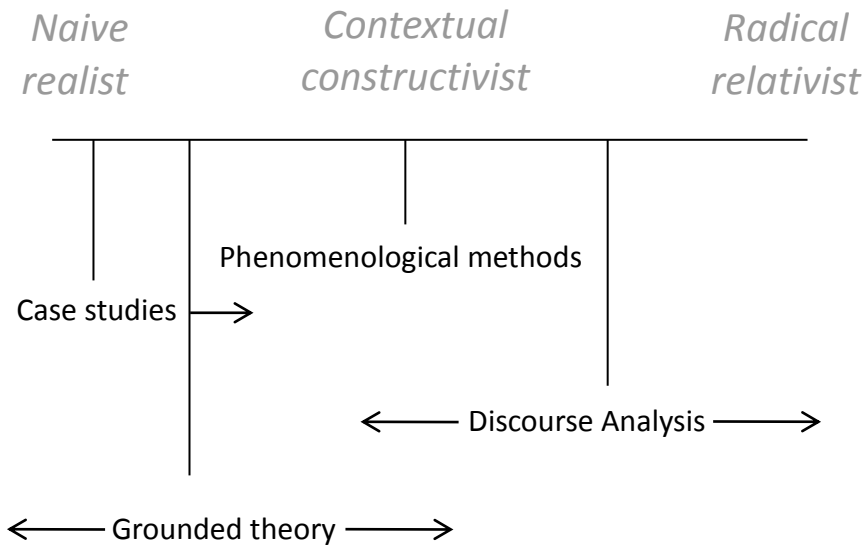

Figure 3:3: Epistemological positions and qualitative research approaches (adapted from Madhill *et al,* cited in Willig, 2008: 153)

The research methodology (as summarised in Table 3:4) needed to accommodate an ecosystem, an interactive process (between ecosystem and individuals), the context of interaction, and the relationship of these items with cultural services as an academic and political construct. In order to explore each aspect of the phenomena a phased approach was used to collect and analyse primary and secondary data which related to a single case study site. Findings from each research phase influenced each subsequent stage of collection, and the use of mixed qualitative methods enabled a response appropriate to the questions generated by each phase (summarised in Appendix A.1). Data collection and analysis methods were clustered around a central position; taking the form of a *constructivist* positioned case-study, and discourse analysis (Figure 3:3). This central position was evaluated by its provision of material which is contextually grounded, and which enabled the development of rich and

comprehensive description (Willig, 2008), and quality measures for the study are discussed further in Section 3.4.

Table 3:4: Overview of generic research methodology

Aspect of methodology	**Position adopted by thesis**
Epistemological foundation	Social constructivism
Philosophical influences	Poststructuralist, existentialism
Research focus	Cultural services (as construct) re. semi-natural study site
Research design	Flexible, exploratory, emergent, phased
Research approach	Mixed qualitative methods
Research strategies	Literature review, case-study, discourse analysis
Data collection	Semi structured and unstructured interviews, marginal participant observation, document review, photography.
Data analysis	Software aided coding & clustering, thematic analysis, Foucauldian Discourse Analysis (DA)

The three phases of data collection and analysis (literature review, case-study, and discourse analysis) made use of the QSR NVivo qualitative data analysis software to manage and query data and ideas, to organise case-study data, review documents, and for coding and clustering supplemented by text book instruction (Bazeley, 2007). Each stage of data collection has been supplemented by notes, taking the form of a journal. This has aided the assimilation of large amounts of data, particularly through the use of mind-maps and other graphic conceptual diagrams. Photographs taken at the study site also supplement the textual account given through the thesis.

The decision to employ mixed qualitative methods was taken in response to findings from the initial case-study, namely the further exploration of subjective experience, and textual descriptions of the site. This followed the realisation that cultural services were not a constant, objectively observable phenomena, and thus employment of a singularly case-study approach might create an unhelpfully bounded perspective. The supplementation of case-study data with phenomenological and discourse data provided different lines of sight directed towards the same point. In addition to the use of mixed qualitative methods, selected theoretical perspectives accompanied the interpretation of findings. This approach has helped to place findings in a wider context, and give an insight into how certain aspects of cultural services phenomena may operate at a scale beyond the confines of this single study site. This approach has

replaced that of the use of multiple study sites in an effort to obtain 'generalizable' study findings.

The evolution of the thesis and employment of mixed qualitative methods was accompanied by a simultaneous epistemological shift. The position assumed was that the version of cultural services depicted through academic and policy literature presents this phenomena as an objectively determinable social fact, which is hence able to be captured accurately by economic valuation methods. This study on the other hand, found cultural services to be socially constructed phenomena which are intrinsically related to, "…language as a form of social action that constructs versions of reality" (Willig, 2008: 153). This final position influenced the structure of the thesis, and the subsequent presentation of results as a series of different perspectives on what cultural-service *is*.

3.3.2 Selection of a case-study site

The list of potential case study sites was determined on the basis of public access, support of a variety of activities, multi-functional land use, designated land, and proximity to the university (to enable frequent visits). Eventually a single study site on the Bedfordshire/ Buckinghamshire border (England) was selected. This was known by many names, but for the purposes of this study has been called Aspley Woods and Heaths. This site fulfilled the short list criteria, and also emerged as a high quality case-study site (as per Yin, 2003; see Section 3.3.4), since constituted the largest area of privately owned land supporting an access agreement in lowland England; whilst also embodying a rich history, multiple habitats, and placement upon the Greensand Ridge landscape feature. In addition to being representative of 'social forestry' (Milligan and Bingley, 2007) Aspley Woods and Heaths was found to incorporate spatial mixing 'juxtaposition' (Harrison, 2006) as both commercial forestry and public use coexisted simultaneously regulated by the definition and application of rules.

The combination of land-cover (the physical form of the land surface) and land-use (the activity or socio-economic function of the land) indicated the presence of complex human-land interactions (illustrated by Plate 3:1), and thus constituted a site with high potential for the manifestation of cultural services. The physical boundaries of the case-study site were determined in part by habitat edges (i.e. where the wood or heathland ended, and agricultural or urban land began), and partly by publicly accessible areas (i.e. not including an adjacent golf course). Activities to determine the temporal and socio-cultural boundaries of the site are described in Section 3.3.4.

Plate 3:1 Naturally occurring gorse, coniferous plantation, and footpath, New Wavendon Heath

Identifying the appropriate level of scale, and a means of landscape classification for the study were important considerations, given the 'pervasive influence' of these on environmental psychology research findings (Bonnes and Secchiaroli, 1995: 108) and ecosystem services in particular (Alcamo, 2003: 3). Various classification systems were examined, such as National Land Use Nomenclature (Harrison, 2006), National Vegetation Classification (Joint Nature Conservation Committee, 2006), and Landscape Character Assessment (Swanwick, 2002). Other options which emerged through the study included the forestry classification method of woodland 'compartments', or the five separately named areas of the site as they appeared on Ordnance Survey map at a scale of 1:25,000 (Figure 1:2). The decision was eventually made to allow the relevance of scale to emerge through the study, by recording scale data as depicted by individual research subjects and site documents. This approach led to the recording of scale data which ranged from soil mineral content, individual plant and tree species, habitats, to a cross-county land-form, the Greensand Ridge. This approach was also taken in reference to time scales, and formed an important finding of the study, detailed in Chapter 9.

3.3.3 Method for literature review

The literature review had three distinct stages. The first focused on the collection and analysis of *original* cultural services literature; the second, on literature which explored *themes inherent* to the concept; and the third, literature *related* to the concept. Each of these phases is outlined below.

Sub-phase 1: Original cultural services literature review

For the initial phase of literature review, searches were made for journal papers which had a direct reference to the terms 'cultural services', or 'information function', in order to build a picture of the current state of knowledge, and potential knowledge gaps (Table 3:5).

Table 3:5: Overview of literature review sub-phase 1: original cultural services (CS) literatures

Data collection phase	**Literature review 2006-2008**	
Sub-phase 1	Original information function/cultural services literature	
Question guiding phase	How did CS concept develop? What is the current state of CS knowledge? What gaps exist? Are definitions comprehensive enough for study? What issues need further clarification?	
Data collected	Journal papers and key books	
Location of results	Chapter 2 Related research objective 1	
Questions arising from this phase of research	What themes are inherent in these literatures, and can we gain a better understanding of CS through exploring these further? What CS-type knowledge exists in other disciplines? Does the original portrayal of CS accurately represent phenomena in the field?	
Execution of exploration re. questions arising	Thematic exploration literature review Related literature review CS phenomena in the field	Chapter 3.4.3 Chapter 5 Chapter 6

Literature collection utilised the Scopus, Science Direct and Web of Knowledge database facilities, such as keyword searches, citation indexes and linked papers searches. The bibliographies of acquired literatures were checked, and the titles of relevance acquired. From this, it was possible to construct a 'family tree' of papers, using citations data from the Web of Knowledge tool (see Appendix A.2). These papers were read, and those which contained a perspective on the phenomena studied were reviewed, summarised and included in the thesis (Chapter 2).

Sub-phase 2: Thematic literature review

Upon development of a social constructionist perspective, texts identified through the first review phase were re-reviewed, in order to identify themes underlying those constructions of knowledge. 'Themes' were considered to be packages of information which were named and theoretically supported in their own right, such as evolutionary psychology, modern lifestyles, wellbeing, higher needs and economic valuation. As explained later, these can be understood to be types of 'discourse', i.e. "…sets of meanings and values which are associated with particular communities or institutions, and which are produced and reproduced through characteristic and often highly conventionalised linguistic choices" (Groom, 2011).

Following this, a further phase of enquiry sought to collect and review additional literatures which would expand awareness of those themes (Table 3:6), and which would provide critical and alternative perspectives.

Table 3:6: Overview of literature review sub-phase 2: thematic cultural services literatures

Data collection phase	**Literature review 2009-2010**	
Sub-phase 2	Thematic exploration	
Question guiding phase	What do themes in original CS documents reveal? Can we gain a better understanding of CS through exploring the themes further?	
Data collected	Journal papers and books	
Location of results	Chapter 3.4.3 Related research objectives 1	
Questions arising from this phase of research	How do discourses support cultural services theorisation? What versions of reality do discourses present which are applicable in a policy context?	
Execution of exploration re. questions arising	Discourse analysis Synthesis	Chapter 9 Chapter 11

The identification of implicit themes in original cultural services literature provided an impetus for the discourse analysis phase detailed in Chapters 9 and 1.

Sub-phase 3: Related literature review

A third phase of literature review was conducted in response to the shortage of cultural services papers, and with the recognition that the CS-type phenomena may be present in other disciplines using different terminology.

Table 3:7: Overview of literature review sub-phase 3: related literatures

Data collection phase	**Literature review 2006-2010**	
Sub-phase 3	Related literature review	
Question guiding phase	What other knowledge exists which is relevant to the CS concept?	
Data collected	Journal papers	
Location of results	Chapter 5 Related research objectives 1	
Questions arising from this phase of research	What picture does this build of the CS? Are these results compatible with each other? Do these results uphold or contradict the original version of CS? Do these have any bearing on the case-study?	
Execution of exploration re. questions arising	Case-study Synthesis	Chapter 6 Chapter 11

This phase of review utilised the aforementioned Scopus, Science Direct and Web of Knowledge database facilities, the bibliographies of acquired literatures, and library and online book searches. Subsequent cross-disciplinary papers were accumulated which contained the words nature, natural, trees, forests, woods, woodlands, ecosystems, and habitats; and wellbeing, health, psych*, experience, social, effects and benefits. The majority of this review took place in the first half of the thesis preparation, and supplementary searches were conducted periodically throughout the latter half. The review procedure involved searching for convergent themes, gaps in knowledge, and areas of potential contradiction, and showed cultural services to be an interdisciplinary construct (Chapter 5). Due to the broad scope of the cultural service concept, this literature search was not exhaustive. It is acknowledged that further reviews using different search methods may identify studies with relevant findings to the cultural service concept.

3.3.4 Method for case study

The first phase of exploratory cultural services primary research required an interdisciplinary approach which could consider both the meaning and context of this phenomena. A case-study was considered to be the most appropriate method for this, as could utilise multiple data sources and data collection techniques. This 'holistic' style of data collection (Bryman, 1988) employed three phases of data collection; a desk study, and two sets of interviews. The entire case study was supported by 'marginal participant observation' (Robson, 2002: 318), which enabled the taking of field notes and photographs through passive, unobtrusive inclusion in

study site activities. The primary data collection for the case-study consisted of two sets of semi-structured interviews, influenced by the principles of phenomenological research. Phenomenology, "… attempts to explore personal experience and is concerned with an individual's personal perception or account of an object or event, as opposed to an attempt to produce an objective statement of the object or event itself" (Smith and Osborn, 2008: 53). The cultural services phenomena was hitherto explored through accounts of subjective experience accessible through verbal accounts, since "…perception, experience and action constitute an original sphere that is only 'really' accessible to the perceiving, experiencing or acting subject… so-called factual realities are only truly evident as phenomena of the subjective consciousness" (Hitzler and Eberle, 2004: 69).

This position was reflected by the integration of four phenomenological principles into case-study primary data collection; intentionality, epoche, reduction and imaginative variation. Since the phenomenological approach "…does not constitute a unified and closed system of propositions and practices" (Willig , 2008: 50), the principles were reflected upon in order to obtain a good understanding of their meaning, then ways were found to invoke or apply them in the research method. Intentionality is the notion that "the appearance of an object as a perceptual phenomenon varies depending on the perceiver's location and context, angle of perception and, importantly, the perceiver's mental orientation (e.g. desires, wishes, judgements, emotions, aims and purposes)" (Willig, 2008: 52). Consequently, objects in the natural environment which constitute sources of cultural services, cannot be considered as separate from the *experience* of these. This position has already been adopted into the research design (see Section 2.5.1), and is exemplified by the departure from the realist position which initiated the study. The inclusion of 'orientation' in the interview schedule is detailed below in connection with the reduction principle.

Epoche refers to the researcher actively 'bracketing' pre-judgements and assumptions about the phenomena from other sources, "…so that there can be no influence from them on the instance being considered (Giorgi and Giorgi, 2008: 33). This process was active through data collection and analysis, whereby the prescribed cultural services format and literature review findings were consciously omitted from the interview agenda and coding activities. Instead, these interviews followed a free-flow format guided by the interviewee themselves, then analysed through *inductive* coding procedures (described below). Reduction, or 'scientific phenomenological reduction' (Giorgi and Giorgi, 2008: 33) perceives research activities to offer access to the various manifestations of human consciousness, rather than to reality itself. Thus through reduction we gain insights into the 'texture' of what is experienced (Willig, 2008: 53). This principle was present throughout data collection, which encouraged interviewees

to describe their awareness of physical (sensory) features of environment, and experiential (internal) thoughts and feelings.

Imaginative variation comprises the identification of the structural components of experience, and aims to identify the conditions associated with the phenomena, potentially to include 'time, space or social relationships' (Willig, 2008: 53). This principle was incorporated into the research design through consideration of the features of the physical and contextual social environment, as investigated through the desk study in combination with interview data. The synthesis of this structural and textural information would then allow "…an understanding of the *essence* of the phenomena" (Willig, 2008: 53), i.e. the characterisation of experience related to ecosystem cultural services. However, although these phenomenological principles were integrated into the study, a phenomenological methodology was not employed wholesale. This is because the study needed to emphasis the natural environmental, and so, the study site was viewed as the case study, rather than the individual cases (subjects) interviewed.

Sub-phase 1: Desk study

The aim of the desk study was to ascertain the circumstances influencing the physical and social structure of the site. Broadly, these comprised the geomorphic and ecological forces, and social trends (both historic and current) which led to the particular configuration of environmental features present at the time of study. This enabled a deeper understanding of processes which had shaped the site, and which were thus embedded in the experience of cultural services.

Documents for the desk study were collected throughout the entire research period; however, many of those collected between 2005 and 2007 had been superseded by the end of the study. Subsequently, an updated desk study was carried out from 2008 to 2010. Documents which were available in the public domain were collected via internet searches, and by visits to local libraries and the historic environment record office. To access information which was not publicly available, the following organisations were contacted directly by letter: the Bedford Estate (landowner), Bedfordshire and Luton Biodiversity Recording and Monitoring Centre, Buckinghamshire and Milton Keynes Environmental Records Centre, Woburn Sands and District Society, Milton Keynes Unitary Authority, and English Heritage.

Table 3:8: Overview of case-study sub-phase 1: desk study

Data collection phase	**Case-study**
Sub-phase 1	Desk study 2005-2010
Question guiding phase	What socio-historic forces have shaped the site? What geomorphic and ecological forces have shaped the site? What designations/legislation/ byelaws/management plans relate to the site? What current issues affect the site?
Data collected	Policy documents, ecological survey reports, information leaflets
Location of results i	Chapter 7, Chapter 8 Related research objectives 3 & 4
Questions arising from this phase of research	Can socio-historic and geomorphic/ecological processes and circumstances which contextualise site CS be captured in valuation and policy? How secure is provision (i.e. public access)? What is needed to secure provision?
Execution of exploration re. questions arising	Discourse Analysis Chapter 9 Synthesis Chapter 11

Paper documents were scanned, and were, along with other electronic file formats, converted into Microsoft Office Word files. This enabled their entry into the QSR NVivo software package, to aid the organisation, categorisation and systematic analysis of this large volume of documents. Maps and diagrams were copied digitally, and notes were made of outstanding features, along with a review of historic documents. Findings from the review of historic documents and maps were used in Chapter 7 and Section 8.1. It should be noted that this protracted phase of secondary data collection occurred concurrently with both the expert and visitor interview phases of primary data collection.

Sub-phase 2: Visitor interviews

The first phase of primary data collection for the case-study consisted of onsite visitor interviews, and was aimed at obtaining a sample of authentic raw cultural services-type experience, in 'real-time' (i.e. as it was happening) (Table 3:9). The sample size for the visitor interviews was driven by the concept of 'saturation'; that is, sampling ceased when the same issues were repeated by different interviewees. This approach is adapted from the concept of 'theoretical saturation' prominent in Grounded Theory, which posits that ,"…a category is saturated when no new information seems to emerge… a matter of reaching the point in the research where collecting additional data seems counterproductive" (Strauss and Corbin, 1998: 136). It is acknowledged

this is partially a pragmatic decision however, since, "…in reality, if one looked long and hard enough, one always would find additional properties or dimensions…as is sometimes the situation, the researcher runs out of time, money, or both" (Strauss and Corbin, 1998: 136). In this phase of research, a total of 41 people were interviewed as individuals and in small groups. However, some of the early group interviews were dominated by a single interviewee, with minimal input from the other group members. For this reason, three interviews were omitted from the study due to the complexity of group dynamics (which had not been accounted for by the methodological approach) and subsequent interviews sought only solo visitors to the site. The final sample size was reflected by the generation of 24 transcripts. Most interviews lasted for around 20 minutes, however two lasted for over one hour, and three lasted for ten minutes. A 100% success rate for requesting interviewee involvement was achieved.

Table 3:9: Overview of case-study sub-phase 2: visitor interviews

Data collection phase	**Case study**
Sub-phase 2	Visitor interviews Summer 2007
Question guiding phase	What (CS-type) phenomena is experienced by site visitors? What aspects of the site provide CS? How CS received / what is the process of reception?
Data collected	Semi-structured interviews Transcripts generated 24
Sample	Purposive, non-proportional quota sampling: visitors to the study site
Location of results i	Chapter 6 Linked research objectives 2
Questions arising from this phase of research	Can these behaviours be classed as self-regulation? How does available language influence description of CS experiences? How do CS experiences differ between users? How do experiences compare with the original and widened CS construct?
Execution of exploration re. questions arising	Discourse (key informant) study Chapter 9 Synthesis Chapter 11

Despite non-proportionate quota sampling, and efforts to interview those from minority groups, the majority of interviewees were Caucasian males, either alone or in a group, and who ranged in age from teenage to pensioner. All women interviewed were adult Caucasian, and all were accompanied by another adult. One Asian family were observed, and the father spoken to; and one lady with special educational needs (accompanied by a carer) was engaged with. No other ethnic minority peoples, solo

women, or small children were in the vicinity at the time of sampling, and so these people are not represented by these findings.

Since a main aim of this phase was the collection of authentic accounts of experience, special attention was paid to the conduct of the interview, to make it as comfortable and effortless for interviewees as possible. Conscious decisions were made regarding the appearance of the researcher (informal, site-suitable clothing; no clipboard and subtle use of technological equipment) in order to be unobtrusive and amenable. Interviewees were approached in the woodland setting in a friendly manner, the study outlined, and a request made for their participation (as per the Ethics Proposal, Appendix 12.3A.6). Early conversation was intended to gain rapport, followed by questions aided by a memorised themed interview schedule. Questions related to themes, and the wording of each was organised spontaneously, with efforts made to use the respondent's own language. Participants were encouraged to elaborate as they saw fit, and explicit and non-verbal support (verbal tone, eye contact and body language) was given to encourage open and honest communication. Interviewee's responses were written in shorthand as per the ethnographic method. Interviewer questions were written only when these responses which might be perceived as 'led' ("e.g. "does it make you feel like a responsible dog owner"). The shorthand transcripts were then typed into Microsoft Word, and the electronic transcripts entered into the NVivo software package for analysis. No additional data was added to these transcripts at this state of analysis.

Data analysis was based around the inductive coding and clustering method, as advocated by Miles and Huberman (1994: Chapters 4 and 10). Interview transcripts were reviewed line by line, and code labels attributed or generated accordingly. However, this process had a deductive element to it, as most codes were informed by the literature review and research objectives. A coding 'tree' was created in NVivo, and any unusual phenomena recorded as a 'free node'. Codes were checked with the supervisory team and with colleagues, for alternative interpretations, and to enhance the code labels. Transcripts were re-read, and contrasted with other documents to retain sensitivity to differences in coding. Data analysis was interwoven with data collection; with approximately three interviews being analysed in between field trips. Later in the data analysis cycle, the code list was reconstructed, with some code categories extended, divided, merged and deleted. This 'cleaned-up' the data, and made it into a suitable format for identifying patterns and writing descriptions of the phenomena.

After coding, a series of themes and subthemes were identified, and connections made between codes. These theme (coding) clusters were then used to structure the display

of data provided by Chapter 6. Excerpts from the original shorthand transcripts were included in the body of the text, however it should be noted that some of these were 'filled' by the researcher to make complete sentences, as had originally been written in shorthand, (e.g. "usually come together- arranged by text during the week", became "We usually come together, it's arranged by text during the week"). This was considered appropriate given that the purpose of this phase of research was to explore phenomena in the field, rather than focus on the language used by participants. Quotes from visitor interviews used in the text have been *italicized* to demarcate these from citations used from textual sources and personal communications.

Sub-phase 3: Expert interviews

The second phase of primary data collection consisted of a series of expert interviews, which aimed to explore the current issues from the perspective of those professionally engaged with the site, and to clarify contextual evidence obtained through the desk study (Table 3:10).

Table 3:10: Overview of case-study sub-phase 3: expert interviews

Data collection phase	**Case study**
Sub-phase 3	Expert interviews 2007-2010
Question guiding phase	What are the current issues for the site? What current land-use and management practices affect site structure? What socio-political issues affect the context and structure of site? How do professionals associated with the site view it? Are there any function/service trade-offs?
Data collected	Semi--structured interviews Transcripts generated 10
Sample	Purposive, non-proportional quota sampling: professionals who have a working relationship with the study site
Location of results	Chapter 6,7,8 Related research objectives 3 & 4
Questions arising from this phase of research	How is the landscape shaped by wider issues? How do sites descriptions reveal 'value'? How does value relate to the purpose of various social actions?
Execution of exploration re. questions arising	Discourse Analysis Chapter 9 Synthesis Chapter 11

Experts were interviewed from each of the three organisations directly involved in the management of the case-study site. These were the land owning organisation (Bedford Estate); representatives from the local authority responsible for public access

(Bedfordshire County Council); and representatives from the charity granted responsibility for implementing public access management (the Greensand Trust). One additional meeting took place with representatives from Bedfordshire and Luton Geology Group. Interviewees were contacted by phone and/or email, given an outline of the research, and asked if they would like to take part. Ethical procedures outlined in Section 3.4.2 were followed. All interviewees accepted, and interviews took place in various locations (Table 3:11).

In total, 10 interviews were carried out with a total of 11 interviewees. Each interview lasted for between 1 and 1 ½ hours. The county council Landscape and Countryside department manager was interviewed twice. The County Ecologist and Historic Environment Information Officer were each interviewed twice; once together and once each alone. No direct quotes were included from the Historic Environment Information Officer interview, but material from these meetings was used to assist in the compiling of historic information for the study site. The land owner, land manager and Forestry Manager were interviewed as a group, and this was followed by a further individual interview with the Forestry Manager. The landowner was interviewed a second time for the discourse study (see Section 3.3.5). The Greensand Trust ranger and senior ecologist were interviewed together, as were the head geologist and manager from the Bedfordshire Geology Group. The study of group dynamics did not form part of the interview analysis protocol. Since each of those interviewed had considerable experience of the study site in relation to their area of expertise, these semi-structured interviews were approached with a minimised interview agenda. A list of themes was prepared to guide each interview, but interviews were then allowed to flow in an informal conversation style. This enabled extensive coverage of topics which had hitherto been outside the knowledge of the author, but did make the transcription and analysis of data challenging and time consuming. However, this was considered worthwhile due to the depth and breadth of issues covered. Interviews were recorded using an MP3 recorder.

Interviews were typed into Word documents, and transcripts entered into the NVivo software. These were then analysed using the inductive coding and clustering technique advocated by Miles and Huberman (1994, Chapters 4 and 10). Interview transcripts were reviewed line by line, and code labels attributed and/or generated as necessary. Transcripts were re-read, and contrasted with other documents to retain sensitivity to differences in coding. The emergent coding tree was altered and added to as the analysis continued. Coding categories were checked with the supervisory team, and examples of raw interview excerpts were included in the body of the text (Chapters 6, 7, and 8). Findings from the expert interviews were used to guide the concurrent desk study and vice versa. For this reason, interview and document review

findings related to the issue of 'context' were interconnected, thus have been presented together in Chapter 7. Quotes from expert interviews used in the text have been *italicized* to demarcate these from citations used from textual sources and personal communications.

Table 3:11: List of experts interviewed for the case-study

Name	**Post**	**Organisation**	**Interview location**	**Interview date**
Withheld	Countryside Access staff member	Bedfordshire County Council	Forest of Marston Vale x1: Rushmere Park x1	19.11.09 & 20.01.10
John Comont	County Ecologist		Bedfordshire County Council x1: Aspley Woods x1	17.05.07 & 06.03.08
Stephen Coleman	Historic Environment Information Officer		Bedfordshire County Council x2	06.03.08 & 16.04.08
His Grace the Duke of Bedford	General Manager of Bedford Estates	Bedford Estate	Woburn Abbey x1	06.01.10
William Shearer	Property Consultant to Duke of Bedford and Trustees of Bedford Estates	Bidwells Property Consultants		06.01.10
David Hardie	Forestry Manager	Bedford Estate	Woburn Abbey x1: Aspley Woods x1	08.10.09 & 06.01.10
Withheld	Ecologist	Greensand Trust	Stockgrove Country Park x1	09.10.09
Withheld	Ranger			09.10.09
Dr Martin Whiteley	Geology Sites Manager	Bedfordshire Geology Group	Aspley Woods x1	15.09.09
Beverley Fowlston BSc FGS	Events Coordinator			15.09.09
Paul Cox	Local Historian	Independent	Milton Keynes	24.08.11

Findings from the case-study contributed considerably to the constructivist perspective which emerged through the thesis preparation. Periods of reflection and reflexivity followed the data collection, analysis and writing of results, and these inspired further consultation of epistemological and methods texts. The need for a different approach subsequently arose in response to the observation that ecosystem 'cultural services' are a *social constructed phenomena*, fundamentally related to textual translations of experience. The availability of discursive resources, the prioritisation of certain perspectives, and the symbolic representation of the natural environment were thus observed to be embedded in representations of cultural services as typified through literature, policy and valuation. This observation led to modification of the methodological approach for the remainder of the study, as described in the next section.

3.3.5 Method for discourse study

Findings from the case-study showed that designations, byelaws, resource regimes, and descriptions of the study site (as provided by visitors, experts and site-related documents) contained contextually situated messages which 'said' something about the cultural services of the study site. These findings, when integrated into the emerging thesis, developed a post-structuralist inspired constructivist perspective on the constitution of cultural services. This shifted perspective subsequently considered ecosystem service monitoring, documentation, valuation and assessment activities to be forms of cultural services with identifiable discourses. The initial literature review (Chapter 2) was regarded as giving an insight into political and academic discourses, prompting the thematic analysis detailed in Chapter 3.4.3. Rather than primary data collection being viewed as providing insights into experience or 'objective reality', it was regarded more appropriate to continue to study cultural services as a *discourse*;"… a body of language-use that is unified by common assumptions" (Abercrombie *et al*, 2000: 99).

The purpose of this phase of research was to explore the constitution of different cultural services discourses, in order to be able to synthesise these with political and academic representations of cultural services. Discourse analysis was selected as this focuses on, "…talk and texts as social practices and on the resources that are drawn on to enable those practices" (Potter, 1996: 129). This was appropriate since ecosystem cultural services activities can be viewed as social activities which are dependent upon their textual and communicative representation in documents and speech. The aim of the analysis was not to, "…'discover' the 'truth' or produce a 'definitive' reading" of cultural services narratives, but was rather to, "…produce readings that are warranted by attention to the detail of texts and that lend *coherence* to the discourse being

studied." (Gill, 1996: 147). This was justified since, "…the denial of modernist epistemological principles in post-structuralism gives method a quite different function. The objective is no longer the revelation of truth, and the focus shifts to the issue of meaning. Thus methodological issues relate "…to the *resolution of ambiguity* in the construction of meaning, to the possibilities of meaning, and to the effects of meaning" (Williams, 1999: 251) (Italics not in original).

Gill (1996) identifies four themes which were applied in this phase of research. Firstly, discourse (i.e. talk/ texts) *is* the topic in its own right, as, "…instead of seeing discourse as a pathway to some other reality, discourse analysts are interested in the content and organisation of talk and texts" (Gill, 1996: 141). Secondly, since there are multiple ways of describing any phenomena, then language (discourse and available discursive resources) is perceived to be *constructive*. This contrasts with the traditional realist perspective, which views language as "…a relatively straightforward path to 'real' beliefs or events, or a reflection of the way things really are" (Gill, 1996: 142). The third theme concerns the 'action orientation' of discourse. Language (discourse) is seen as a functional *social practice*, which constructs things according to context. As such, the subtle aspects of the 'interpretative context' should be analysed along with discourse. Finally, discourse is noted to be organised rhetorically, as this "…is involved in establishing one version of the world in the face of competing versions…(and) is organised to make itself persuasive" (Gill, 1996: 143).

In light of these points, specific findings from the case-study considered to be issues of power/identity (i.e. freedom, self-regulation and identity formation in Chapter 6, elements of contextuality in Chapter 7, implications of resource regimes in Chapter 8) were explored using a *Foucauldian* approach to discourse analysis (Willig, 2008; summarised in Table 3:12. This approach, "…draws attention to the power of discourse to construct its objects, including the human subject itself (and how) the availability of subject positions constrains what can be said, done and felt by individuals." (Willig, 2008 (b): 182). Foucauldian discourse analysis (FDA) explores the role of language in the constitution of social life, and the discursive resources available to people in the construction of self and power relations; i.e. "… *what kind of* objects and subjects are constructed through discourses and *what kinds of* ways-of-being these objects and subjects make available to people." (Willig, 2008: 95-96).

Table 3:12: Procedural guidelines for the analysis of discourse (after Willig, 2008: 114-117)

Phase and title		Procedural guidelines	Key questions
1	Discursive constructions	Identify the discursive object, and how it's constructed. Highlight implicit and explicit instances of reference. omissions.	How is discursive object constructed through language? What type of object is being constructed, and what features characterises this?
2	Discourses	Focus on the differences between constructions. Locate various discursive constructions within wider discourses.	What discourses are drawn upon? What is their relationship to one another?
3	Action orientation*	Examine discursive contexts closely. What is gained from constructing the object in this way? What is its function?	What do these constructions achieved? What are the functions? What is gained from deploying this construction?
4	Positionings	Look at how this discourse constructs the subject and makes certain positions available within specific networks of meaning.	What subject positions are made available by these constructions?
5	Practice	Systematic exploration of the ways discursive constructions and subject position is open or closed down opportunities for action.	What possibilities for action are mapped out by these constructions? What can be said/ done from this position?
6	Subjectivity	Explore the relationship between discourse and subjectivity and the consequential 'vantage point'.	What can be felt, thought and experienced from within the various subject positions?

*The 'discursive context' advocated by stage 3 was replaced by Gill's (1996) concept of an 'interpretative context', to enable the exploration of interviewees' social context.

In order to explore cultural services as discourse, two corpuses (i.e. body of texts) were constructed relating to the study site. These comprised a representative sample of site documents, and transcripts from a series of key informant interviews. The analysis of these texts centred upon the discursive resources used to construct images of the study-site, and the implications of these constructions. It is held that, "…discourses are ways of representing the world which can be identified and differentiated at different levels of abstraction" (Fairclough, 2003: 133); subsequently the scale of the analysis practiced by this research focused upon the vocabulary used in statements (rather than a grammatical, linguistically-orientated approach). This

was appropriate since, "…the analysis of discourse for Foucault is the analysis of the domain of 'statements'- that is, of texts, and of utterances as constituent elements of texts" (Fairclough, 2003: 124).

Sub-phase 1: Document analysis

The first discourse study phase analysed documents which were found to contain representations of the study-site and accounts of phenomena broadly concurrent with the dominant academic view of cultural services (Table 3:13).

Table 3:13: Overview of discourse-study sub-phase 1: document analysis

Data collection phase	**Discourse analysis 2009-2010**
Sub-phase 1	Analysis of documents which referenced CS-type site phenomena
Question guiding phase	What constitutes the discursive objective? How is language used to construct the object and its value'? How does this relate to the purpose of the document?
Data collected	Site description documents Number of docs 12
Sample	Documents representing expert opinion from the local authority, land managers, users and conservation organisation
Location of results	Chapter 9 Related research objectives 5
Questions arising	See Recommendations, Chapter **Error! Reference source ot found.**
Execution of exploration re. questions arising	Synthesis Chapter 11

Texts selected for analysis consisted of green infrastructure and forestry planning documents; ecology and local heritage surveys; a Landscape Character Assessment; citations providing the designation rationale for Scheduled Ancient Monument (earthworks), Site of Special Scientific Interest and County Wildlife Site status; a report on the public access agreement; and general public information documents. These were chosen based on their content (rich, textual description of site or local area) and in order to provide a wide range of viewpoints in order to give a balance of expert opinion. A total of 12 source documents were selected, listed in Table 3.14. The method of analysis and structure of subsequent findings utilised the principles described in Section 3.3.5.

Table 3:14: Corpus selected for discourse analysis: site related documents

Document title	Document Type	Author	Date	Social action/ purpose	Access
Aspley Guise GI Plan	Council LDF document	Greensand Trust (GST)	2007	Identify GI for future policy	Public, online
Bedford Estate	Forestry Plan	Bedford Estate	2003	Obtaining of Forestry Commission Grant	Access upon request
Ecological Survey	Survey Report	Countryside Consultants (c/o Bedford Estate)	2002	Survey required for Forestry Plan, to obtain grant	Access upon request
Aspley Guise and Aspley Heath	Parish Survey (historic)	Stewart Brown, Bedfordshire Planning Dept.	1979	Recording of history	Public access in person
6A Woburn Greensand Ridge	Landscape Character Assessment	Land Use Consultants	2007	Assess and monitor landscape for policy purposes	Public, available online
Wavendon Heaths and Aspley Wood	County Wildlife Site (CWS) Citation	Mid Bedfordshire Council	2000	Conservation, monitoring and policy making	Public, access in person
Wavendon Heath Ponds	SSSI Citation	Natural England	1998	Conservation and monitoring of nature	Public, available online
Danes-borough Camp	Scheduled Ancient Monument Citation	C. Edwards, National Heritage	1993	Conservation and monitoring of heritage	Public, access written request
Aspley Woods Access Agreement	Report	Central Bedfordshire Council, Milton Keynes Council ('the councils')	2010	To achieve renewal of public access agreement and gain funding	Restricted access
Mountain biking (various titles)	Website Forum Pages	Veteran mountain bikers	2010	Knowledge sharing re excellent biking places.	Public, available online
Aspley Woods	Website Information Page	Greensand Trust (GST)	2010	Public information and promote work of GST	Public, available online
Aspley Sandpit	Information Sheet	Greensand Trust (GST)	2009	Public information and promotion of GST	Public online & onsite

Each document was individually reviewed in terms of background information, cultural services-type phenomena, boundaries, use of language and use of graphics. The term 'discursive object' was used to refer to the geospatial area and attached 'social value' constructed by each document. Additional information on the document type, author/ publisher, date, purpose of document and access was also compiled, and may be viewed in Appendix 1.1.1.1.1.1A.1. The 'purpose' of each document was derived explicitly through document objectives, from introductory statements or, for the SSSI and SAM from information provided by Natural England (b), 2010) and English Heritage (2003; 2004).

Documents were entered into the NVivo software, and coded inductively (see Appendix 12.3A.3. Through this process a number of features emerged which were relevant in constructions of the discursive object, these being identifying features (i.e. name, location); descriptive features (i.e. physical features, social and ecological processes, time, shape and form); and particular presentations of features (i.e. qualitative and expert terminology, quantitative information, graphics). Following coding, a summarised data sheet was created for each document, leading to an expanded analysis sheet for each document. Samples of the raw material from documents and early analysis are presented in Appendix 12.3A.4. Subsequent to analysis and identification of constructive elements, tables were created which cross-compared features and enabled the emergence of patterns. These tables supplement the findings in Chapter 9, and may be viewed in Appendix 12.3A.9.

Sub-phase 2: Key informant interviews

The second discourse study phase analysed data collected through unstructured key informant interviews (see overview provided in Table 3:15). This phase focused on the 'contextually situated' nature of discourses as, "…part of a social *situation* in people's everyday lives, and as an *experience* among others (whereby) participants represent the for-them-relevant parameters of this situation" (van Dijk, 2009: 4) (italics not in original).

A total of eight subjects were identified during the case study that each had a significant personal connection with the study site, as indicated through extensive historic and/or current participation in site-related activities. A brief was sent to each research participant by email, or in person (Appendix 12.3A3).

Table 3:15: Overview of discourse-study sub-phase 2: key informant interviews

Data collection phase	**Discourse study**
Sub-phase 2	Key informant interviews Summer 2011
Question guiding phase	What cultural services discourses are available to subjects? How are CS discourses constituted (i.e. what were the 'for-them-relevant' parameters)? How do CS discourses relate and/or construct subjects' identities?
Data collected	Unstructured interviews Transcripts generated 4
Sample	Purposive, non-proportional quota sampling: persons with current and historic personal connection to study site
Location of results i	Chapter 9 Linked research objectives 2 & 5
Execution of exploration re. questions arising	Synthesis Chapter 11

A total of five subjects responded, and four of these were selected for the study (Table 3:16). For ethical reasons, a pseudonym has been used for the fourth interviewee, that of 'DJ' (please refer to Section 0 for further details).

Data was collected through unstructured interviews based around 5 key themes: knowledge of the wood, freedom, memories, symbolism and self-development, and analysed using the approach advocated by Willig (2008) (Table 3.12).

Table 3:16: List of key informants interviewed for the discourse analysis

Interviewee	**Connection to site**	**Interview location**	**Interview date**
Pat Perry	P3 volunteer and dog walker	Garden centre café	26.08.11
Bob Brown	Villager (lifelong use) and Parish Councillor	Home of interviewee	15.09.11
Andrew Russell	Land owner	Bedford Estate office	23.12.11
DJ	Rave organiser and childhood user	Home of interviewee	27.10.11

Interviews were conducted in a place comfortable and familiar to the interviewee. The interviews were recorded, and transcribed *ad verbatim*. Stutters, pauses, coughs and laughs were also included to aid correct interpretation of the transcript. Interview transcripts were examined in order to reveal how cultural services discourse was related to the social situation (or interpretative context) of the participant. This

was achieved by recording background information of participants' social circumstances, exploring the 'for-them-relevant' parameters of the cultural services of 'the wood', and then looking for patterns within this data. Quotes from key informant interviews used in the text have been *italicized* to demarcate these from citations used from textual sources and personal communications.

Transcripts were deconstructed by identifying direct and indirect references to the study site. These references were then grouped into three or four construct categories, and each category given a name which related to either i) a phrase used by the interviewee which symbolised the subject matter, or (in the absence of this), ii) a name selected by the researcher which encapsulated the subject matter. Each separate quote was then analysed for language use and revealed meanings, and these findings were written up in full. Following this, a table was created for each construct category, which detailed each of the 6 analysis stages used in Foucauldian Discourse Analysis (Table 3:12), and the insights provided by these tables synthesised and reflected upon in light of the cultural service concept(Section 10.5).

3.4 Research standards

3.4.1 Quality

In order to ensure this research has met the highest standards possible, regular evaluation has taken place in accordance with published recommendations for the attainment of excellence in qualitative study. To guide the overall research process, a criteria checklist was used (adapted from Silverman, 2006) and recommendations adhered to throughout the study (Table 3:17).

Evaluation of the research design and methodological approach required specialised guidance, in order to avoid the application of inappropriate quantitative standards to the study. In particular, the orientation towards objectivity, reliability and (statistical) generalizability had to be curbed, since these criteria were recognised as "…relevant to most quantitative studies, but inappropriate for most qualitative studies" (Yardley, 2008: 237). Contextual qualitative approaches are generally evaluated on the basis of the contextual grounding of data, descriptions of the relationship between accounts, and reflexivity (Madill *et al*, 2000, cited in Willig, 2008). Additionally, the inclusion of sufficient raw material, and the internal *coherence* of the thesis are both vitally important, as these allow the reader to fully interrogate the interpretations made (Smith, 1996: 192).

Table 3:17: Criteria for the evaluation of research (from Silverman, 2006)

Are the methods appropriate to nature of question asked?
Is the connection to the existing body of knowledge and theory clear?
Are there clear accounts of the criteria used for the selection of cases for study, data collection, and analysis?
Does the sensitivity of the methods match the needs of the research question?
Were the data collection and record keeping systematic?
Is reference made to accepted procedures for analysis?
How systematic is the analysis?
Is there adequate discussion of derivation of theme/ concepts/ categories from data?
Is there adequate discussion of the evidence for/against the researcher's arguments?
Is a clear distinction made between the data and their interpretation?

Subsequent alternative criteria specific to the requirements of qualitative research were identified (Willig, 2008: 141-153) and actions taken throughout the study to ensure the research process proceeded in accordance with these (Table 3:18). The importance of 'validity' was acknowledged as indicates "…the degree to which it (the research) is accepted as sound, legitimate and authoritative by people with an interest in research findings" (Yardley, 2008: 235). Thesis validity was enhanced through the use of mixed methods, the analysis of disconfirming cases, and the further combining of findings with theory. Quality measures for case study research as advocated by Yin (2003) were followed. This proposes five general characteristics of exemplary case studies: significance, completeness, alternative perspectives, sufficient evidence and engaging composition. In order to be significant, a case study must be unusual, be of general public interest, and contain underlying issues of national importance (of a practical, theoretical or policy nature). The case study fulfils these criteria as supports the largest access agreement in lowland England, and due to the theoretical needs of the nationality applied ecosystem services framework.

Table 3:18: Actions taken throughout thesis to achieve high quality standards (criteria taken from Willig, 2008)

Quality Measure	**Description**	**Actions taken throughout research**
Importance of fit	Enable reader to assess the fit between data and interpretation.	Examples of raw data provided
Coherence	Provision of 'shape' & underlying structure to thesis, whilst still retaining nuances in the data.	Linked phases of research to objective and methodology. Epistemologically influenced design.
Reflexivity/ owning of perspective	Enable reader to assess the analysis, and consider alternative interpretations.	Provision of reflexivity section, making values and assumptions in research explicit.
Document-ation	Provision of comprehensive account of what was done & why.	Use of a journal. Extensive methodology tables & chapter.
Theoretical & negative sampling	Modification of emerging theory through generation of new insights	Exploration of atypical cases. Emergent/ phased research design.
Sensitivity to negotiated realities	Checking of researcher account for credibility.	Supervisor, colleagues & participant feedback. Combination of theory and use of mixed methods.
Transfer-ability	Enable reader to understand the extent of study beyond the specific data-generation context.	Report of socio-political context and ecological features of the study site. Findings linked to current theory.
General vs. specific research tasks	Show how general understanding and/or specific case understanding achieved.	Thorough approach to analysis of (specific) site. Range of individuals selected for general understanding. Limitations of the study made explicit.
Resonance with reader	Enable reader to feel the research has clarified or expanded their understanding and appreciation of the subject matter.	Interesting material and clear language to stimulate resonance in the reader. Pictures and illustrations. Currency of topic.

To achieve completeness, explicit attention was given to the boundaries of the case study, and exhaustive efforts were made to identify and collect all important evidence relating to the site. Particular attention was also paid to the study design to enable a comprehensive study and an absence of 'artifactual conditions' (Yin, 2003: 163). Alternative perspectives were sought that challenged the design of the study through the use of different theories and qualitative methods. To ensure sufficiency, a selectively systematic approach was taken to the identification of key documents and critical evidence was taken. In the pursuit of high quality, it is however important to note that "…expert qualitative researchers who have produced these guidelines emphasise that they should not be used as a set of rigid rules for judging qualitative research" (Yardley, 2008: 239). Subsequently, a pragmatically workable approach was balanced with theoretical excellence.

3.4.2 Ethics

This research was undertaken over an extended period of time, during which Cranfield University was strengthening the oversight of the ethical issues related to its research. The research utilised the guidelines recommended by the British Sociological Association through its Statement of Ethical Practice (2002), and the research proposal received approval from the Cranfield University School of Applied Science Ethics Committee in August 2009 (Appendix A.4).

Interview consent was obtained verbally in relation to the recording of interviews, use of results from interviews in the thesis, and public archiving of the thesis in the university library. However, during writing up (upon realising the potentially controversial nature of some material) it was noted that permission had not been formally obtained for the presentation of *ad verbatim* quotes in the thesis. To rectify this situation, all interviewees in the 'expert interview' (3.3.4) and 'key informant interview' (3.3.5) phases of data collection were contacted by email or in person, and asked the following:

- if they would like to see copies of their transcripts
- if they were happy to be quoted directly from the interview transcript
- if they would like to be quoted anonymously or how they would like to appear
- whether these instructions would be the same for publication in academic journals

All interviewees (but three) were happy for their names to be cited in the thesis. Hence the first names and surnames of key informants are listed in the methodology, with first names quoted in the relevant chapters. This approach was taken to retain a personal connection between speech quoted and the individual who had been

interviewed. Due to the nature of some of the material provided by the key informant known as 'DJ', it was elected to protect this interviewee's anonymity through use of a pseudonym and the omission of his place of abode. For expert interviewees, the decision was taken to list names in the methodology, and use job titles in the text. This approach was taken in order to highlight the professional context of the comments made. A request to withhold the name of the local authority representative was upheld. No response was received from two expert interviewees regarding the use of their names in the thesis, but permission was obtained to attribute these individuals' quotes to their job titles.

Six interviewees requested to see their transcript, and these individuals were sent two documents by email; the full transcript, and the *ad verbatim* quotes used in context. Five interviewees suggested amendments to the language used in their transcripts, and three requested amendments to factual content In relation to *language/ grammar*, a dialogue was initiated which responded to the concerns of the interviewee whilst discouraging the requested amendments. Assurances were provided that the interview quotations were not expected to be grammatically perfect since reflected the nuances of spoken English, and it was explained that it was desirable to maintain the 'character' of the original quotes. Following this dialogue, four of the five interviewees were happy for their original quotes to be used in the thesis; although two of these did ask to be contacted prior to any journal publications, to provide grammatical amendments to any quotes used. The fifth interviewee sustained his request to make extensive amendments to the language structure of his quotes and this was upheld. In relation to *factual* amendments, two interviewees requested minor amendments to their transcripts which were upheld. One interviewee requested extensive amendments to both language amendments and factual content; this request was upheld.

A challenging situation arose in regards to the material provided by two further interviewees who had not initially requested to see their transcripts; one of whom had given permission to include his name and *ad verbatim* quotes in the thesis. An email which contained an early draft of two of the thesis chapters had been sent to another interviewee. Despite this email stating that the attachment (draft chapters) were intended for the addressee only, the attachment was forwarded without consent to senior members of the organisation which employing the two aforementioned interviewees. The presentation of material in this draft subsequently caused alarm, as it emerged that the opinions which had been expressed by the individuals were not, in retrospect, suitable for public disclosure, did not reflect the position of the organisation, and were believed to have been cited out of context. This position was fully appreciated, and in an effort to reduce the undesirable impacts of this material, a

suggestion was made (in a telephone discussion with a senior staff member from the organisation) that the original interview material be anonymised and/or an embargo placed on specific chapters to enable the material to be included without causing offence. This proposal was however rejected, and two emails received from the interviewees shortly after, which retracted permission to use their interview quotes in the thesis.

Three weeks later, a heavily edited version of the draft thesis chapters was received (by email) from senior staff members of the organisation. In this document, all quotes had been amended (either by the original interviewee or by a senior staff member), and in some cases deleted. Following this, all the requested quotation amendments and retractions were upheld and incorporated into the evolving draft chapters. In order to maintain clarity, any heavily edited quotes used in the thesis have been starred (*) to ensure the reader is aware these were not the original perspectives obtained through interviews. In the instance where amendments were made by a person not involved in the interview process, and where the amended quotations no longer contained any of the wording of the *original* quote, permission was obtained to attribute these quotes to their new source- marked 'personal communications'.

The extensive nature of these amendments received was disappointing, since these provided stimulating perspectives on issues highly pertinent to the study of cultural services. Nevertheless, a number of valuable lessons were learned from this experience. Firstly the importance of giving interviewees detailed information *at the time of interviewing* concerning the precise use of the recorded material was learned. If this protocol had been followed, it is *possible* that the interviewees would have been more cautious in their opinions, and less material would have been retracted as a result. A signed contract with interviewees may also have assisted this process, as may have negated the ability of interviewees to retract material (freely given and recorded at time of interviewing) thus jeopardising the study at a late stage in the research process. A third lesson concerns the ability for people to forward confidential electronic documents to others. It is noted that this is a potentially common scenario, and as such, 'email' is not a protected medium to conduct certain types of communication. The final observation is that, in hindsight, the draft thesis excerpts which were sent were unnecessarily detailed, and did not need to contain the anonymous quotes of other interviewees. In future, quotes in context and transcripts would only be sent to those respondents who were involved in specific interviews, and greater caution exercised in the provision of excerpts from draft documents prior to submission.

3.4.3 Reflexivity

Research which has been carried out using a qualitative approach intrinsically reveals that the researcher recognises their potential influence on the research findings. Particularly in the constructivist tradition, researchers are observed to be "…very much a part of this web of cultural construction… (This) means that research has to be seen as a joint product of researcher and researched" (Ashworth, 2008: 21). Thus, an important part of ensuring research transparency is the inclusion of a reflexive discussion. Reflexivity "…is the term used for explicit consideration of specific ways in which it is likely that the study was influenced by the researcher" (Yardley, 2008: 250). This will require attention to matters such as the researcher's background and interests, and the acknowledgement that "…the experiences not only of our participants but also of ourselves as researchers constitutes a fundamental part of the research process" (King, 1996: 175).

In my own case, an understanding of knowledge as being context-specific led to the rejection of empirical, reductionist methods at an early stage of research, and to instead embrace a deep interest in qualitative methodology and its relation to epistemology. This drive for conceptual coherency has motivated my PhD study, and this has developed over the seven years of part-time research. My perspective as a researcher has developed concurrently with my personal growth as an individual, and there has been considerable overlap between the skills I have gained through undertaking doctoral studies and my general life skills. Additionally, I have been given a considerable amount of freedom as concerns my topic of research, due to the award of bursary funding for this study (as opposed to being employed on a particular research council or industry funded project).. Given that this has meant substantial choice over the direction the research has taken, I feel it is even more important to clarify my own perspective and position.

The development of the thesis was first influenced by my place of study. I originally joined Cranfield University to undertake an MSc by research, due in the area of ethics, the natural environment, and organisational culture. This followed my undergraduate dissertation for BA Business Organisation, which explored the introduction of corporate environmental accounting procedures. Upon joining Cranfield, my interests in natural sciences were heightened, due to my being surrounded by soil scientists, hydrologists, ecologists and environmental economists. It was through this that I was introduced to the Ecosystem Services Typology and Millennium Ecosystem Assessment. I realised that the issues I wished to explore through my PhD were beyond an organisational approach, and the early stages of my thesis thus involved gaining an understanding of the main positions in sociology.

Whereas Cranfield's School of Applied Sciences is globally recognised for its multi-disciplinary approach to research and teaching, the focus on applied rather than theoretical research meant that I had limited opportunities to build networks with others engaged in qualitative social science research. I compensated for this by spending longer than usual on my methodology, and by using qualitative psychology methods books, which I found to be considerably more detailed than social science methods texts. I also made contact with two academics in other universities; having a meeting and email contact with Kate Irvine (environmental psychologist, de Montfort University), and helpful telephone conversation with Carla Willig (qualitative psychologist, City University).

Some aspects of my personal circumstances have also lent themselves to the perspective adopted and developed through this study. My role as a parent has meant that a great deal of my energy is focused on nurturing, and this is perhaps influential in my interest in personal (psychological and physical) development. I am also particularly interested in the tension inherent in creating expansiveness and boundaries, which bears relation to the 'structure and agency' approach adopted throughout the thesis.

Our household also embodies a number of minority groups, namely a single parent family, with diverse ethnic heritage, and physical disability. I am also a female researcher, and as such I am part of an under-represented group in academia. This minority position has perhaps been influential in shaping my perspective on society, which is liberal, diverse and critical of the mainstream. Whereas I am disinclined to label myself as of a particular research orientation, I find there to be a match between my views and literature of a postmodernist, poststructuralist and existential bearing, however my position is evolving and as such, I am different things at different times.

3.4.4 Limitations of the study

The potential for cultural services study is substantial, and this study has, like any, been bounded by limited resources and research capabilities. Being qualitative, it has not generated any statistical analyses, or any substantial numerical data which might provide a basis for *economic valuation*. The exploratory and abstract nature of the work, and the limited resources available, have meant it has been possible to make any structured *policy recommendations*. The approach taken, an in-depth single site case study, has focused on identifying the experience and context related to the cultural services of the site in order to improve theory. As such, it has not generated findings which are directly generalizable to other sites.

The study did not fully explore the use and importance of the site to the community, other than those individuals and organisations found to be actively involved with the site at the time of data collection. Consequently, the 'snapshot' of spatial-temporal phenomena provided by the study negates the generation of causally predictive variables as an output. Setting the parameters of the study, and gauging the correct balance between depth and breadth has been challenging. The decision to collect data which would provide deep insights was offset by the need to obtain an overview of the multi-faceted issues relevant to cultural services. Subsequently, a deep single-disciplinary perspective has had to be sacrificed, in order to provide an interdisciplinary overview. Thus to improve theory generation, many of the topic areas addressed in the thesis could benefit from further specialist development.

The research focused on 'primary' generation of cultural services (at point of contact), rather than any secondary services which followed on from individuals interacting with the natural environment. The exploration of economic and institutional activities, or social interaction (including material artefact creation) relating to the study site were beyond the scope of the study. Research interviews focused on individuals and did not examine group dynamics. Neither did it seek to investigate any demographic relationships inherent to cultural services phenomena. As such, the collective and demographic aspects of cultural services manifestation remain potential areas for future study. Likewise trade-offs between services have not been explored.

The study could have been improved by an increased focus on marginalised and under-represented groups (e.g. disabled people, ethnic minorities, women), however this was covered in part by the key informants selected for Chapter 9. Matters such as site management, political status, and estate ownership were only explored in direct relationship to public access. However, it is noted that potential exists for these phenomena to be studied as cultural services phenomena in their own right.

4 Cultural service as social construct

The review of original cultural services literature (Chapter 2) identified variations and similarities in the subcategorisation of cultural services. Subcategories were found to be influenced largely by the de Groot typology (de Groote *et al*, 2002); however, in an effort to be all-inclusive, frameworks were observed to reduce and simplify complex psychosocial phenomena. Depictions of cultural services were theoretically under supported, and contributed to a self-perpetuating situation, whereby the absence of underlying rationale and resulting shortage of cross-comparable individual studies had provided a fragile academic foundation on which to base further work. This finding is replicated in a recent paper (Nahlik *et al*, 2012), which notes that "…since the introduction of the ecosystem services concept, numerous definitions have been developed, many of which are vague and necessitate interpretation by those using the definition" (Nahlik et al, 2012: 27). Subsequently, a series of themes were identified in key cultural services literatures (Section 2.5.1), these being the use of *evolutionary theory* as a rationale to explain psychological and socio-cultural importance of nature to humans; conditions of *modern life* to explain the need for nature contact; achievement of a state of *wellbeing*; fulfilment of *higher needs*; and the *economic valuation and quantification* of ecosystems processes for assimilation into social systems. These broad themes were understood to be types of 'discourse' (see Sections 3.3.3 and 3.3.5). Using the method described in Section 3.3.3, this chapter seeks to expand upon each of these thematic areas, in order to develop an improved understanding of discourses inherent to cultural services as a socially constructed phenomena.

4.1 Discourses inherent to cultural services construction

4.1.1 Evolutionary and biocultural theory

It is well established that human society impacts on the natural world, and conversely, nature impacts upon society. The role of nature in defining human history can be based on a theory of *coexistence*; with ancient human pre-civilisation fully integrated with the natural world (Schatzki, 2003). Subsequently, the gradual divorce of society from nature is said to be reflected through incremental social change, associated most convincingly with the introduction of new farming techniques, begun 10,000 years ago by migrating Middle Eastern farmers (O'Rourke, 2000: 104). An increasing body of bio-cultural theory surrounds the notion that as a species, we have not yet fully adapted to this relatively rapid shift in lifestyle, and as such, "much of what we do, and don't do, has its roots in the preferences and habits that our hunter-gather ancestors

found to be of adaptive value" (Moran, 2006: 44). Ancient patterns such as flexibility in the size of social groups, frequent movement to gain access to resources and reduce environmental impacts, food sharing, and reciprocity, are said to be ingrained in our behaviour, since the "values that resulted from choices made millions of times across our evolution on the planet are still at the core of what we must keep in mind to survive in difficult times" (Moran, 2006: 47).

Certain environmental factors are also stated to affect human populations at a cellular level. Empirical evidence indicates that human biology and genetic variation are intricately related to environmental conditions (O'Rourke, 2000). Temperature, humidity, altitude, availability of resources, disease vectors, quality of foodstuffs, duration of sunshine and depth of rainfall have all been found to have biological (Moran, 2006: 43) and psycho-physiological (Gallagher, 1993) consequences for humans. Boyden's work on human ecology and biohistory (2004) demonstrate the 'postulated intangible health needs of the human species', which he suggests were "characteristic of the hunter-gather lifestyle, and therefore likely to promote, or at least be consistent with, optimum health" (Boyden, 2004: 65). These include opportunities for interaction, emotional support, spontaneous and creative behaviour, recreation and the learning and practising of manual skills. Similarly, variety in daily experience and an interesting and aesthetically pleasing environment are reported to be conducive to human health (Boyden, 2004: 66).

The development of a cognitive-bias related to traditional hunter-gatherer lifestyles also shapes current biocultural perspectives. Environmental conditions are said to have brought forth the development of a human species"… with a highly developed capacity for symbolic thought and representation; environmental manipulation; and invention, learning, and appreciation of social facts" (Huss-Ashmore, 2000: 1). The evolutionary benefits (particularly regarding resource orientated decision making) of a well-developed memory and perceptual abilities are observed to be advantageous since "a strong ability to map environmental features and to remember where things are clearly adaptive for a mobile omnivore such as *Homo sapiens*" (Huss-Ashmore, 2000: 22).

Furthering this line of thought, a body of work supports the idea that humans have an intrinsic psychological connection with nature which also influences attitudes towards the environment (Mayer and Frantz, 2004; Kortenkamp and Moore, 2001). This bond is purported to be implicit and outside of conscious awareness, suggesting a primitive part of the brain is at work (Schultz *et al,* 2004). A similar vein of research known as 'Ecopsychology' (Roszak, 2002; Pickering, 2007) advises that there is a 'synergistic relation' between planetary and personal wellbeing; with the needs of one being

relevant to the other. Related to this is the 'Biophilia Hypothesis'. This theory comprises a set of arguments bounded by a common principle, namely the "… innately emotional affiliation of human beings to other living organisms" (Wilson, 1993: 31). The Biophilia Hypothesis proposes that people have a basic tendency, and fundamental *need* to associate themselves with nature. Subsequently a typology of Biophilia values has been put forward (Kellert, 1993: 59) which has much in common with cultural services (Table 4:1).

Table 4:1 Typology of biophilia values (adapted from Kellert, 1993: 59)

Term	**Definition**	**Function**	**Postulated CS link**
Naturalistic	Satisfaction from direct experience/ nature contact	Curiosity, outdoor skills, mental/physical development	Recreation
Ecologistic-scientific	Systematic study of nature's structure, function and relationships	Knowledge, understanding, observational skills	Science and education
Aesthetic	Physical appeal and beauty of nature	Inspiration, harmony, peace and security	Aesthetic
Symbolic	Use of nature for metaphorical expression, language, expressive thought	Communication, mental development	Artistic (and cultural)
Humanistic	Strong affection, emotional attachment, 'love' for nature	Group bonding, sharing, co-operation, companionship	(Artistic and) cultural
Moralistic	Strong affinity, spiritual reverence, ethical concern for nature	Order and meaning in life, kinship and affiliation ties	Spiritual and historic
Negativistic	Fear, aversion, alienation from nature	Security, protection, safety	Negative aspect of information function
Utilitarian	Practical and material exploitation of nature	Physical sustenance/security	Production function
Dominionistic	Mastery, physical control, dominance of nature	Mechanical skills, physical prowess, ability to subdue	Production function

Some criticisms have been observed regarding the Biophilia Hypothesis (Kahn, 1999), and evolutionary perspectives in general. Opposing arguments may be made based on biological terms, given the 'formidable critiques' against sociobiological programs (Kahn, 1999: 29). Objections include suggestions of flawed methods, and arguments for primacy of *non*-biological constructs such as learning, cognition and culture. Controversy exists, even amongst supporters of the evolutionary perspective, over the relative roles of genes, the environment, and culture (Pretty, 2007). However, some Biophilia publications propose the phenomena to be more than purely genetic/biological, as it "...is not a single instinct but a complex set of learning rules that can be teased apart and analysed individually" (Wilson, 1993: 31).

A further observation is made regarding the apparent contradictions of Biophilia and biophobia (Kahn, 1999: 31). It may be said that this is accounted for by Kellert's typology, via the reference to 'Negativistic' values (discussed later in literature review). However, this is notably an underdeveloped area in most publications, which usually focus on positive attributes of human-nature relations. Thus, it may be prudent to exercise discernment and an element of caution in seeking beneficial ecosystem cultural services only, in order to maintain academic rigour and prevent perspectives becoming polemic. Given the breadth of interdisciplinary subject matter put forward for the Biophilia Hypothesis, it has been questioned whether the theory can stand alone, or whether it needs empirical corroboration to receive widespread scientific accreditation. This theme is one pertinent to many ecosystem service-type findings; the requirement for a certain level of 'proof' and quantitative or statistically laden results for acceptance into standardised knowledge systems of the West.

The bio-cultural discourse generally supports the notion that, as a species, we are genetically predisposed to relate to nature. However, contradictory opinions and a lack of empirical evidence destabilise the argument, particularly given the observation that humans appear to operate with reasonable success in urban society. As Pretty points out, "it is now an increasingly common conception that humans are well adapted to the ancestral Pleistocene environment, but not particularly to the industrialised environment. But this is only partly correct. Foundations were indeed laid in the Pleistocene, but evolution has been working since then." (Pretty, 2007: 205).

4.1.2 Modern post-industrialised lifestyles

It is commonly accepted that abundant access to resources, as enjoyed by the majority of UK citizens, makes for a better standard of life. However, attempts to measure wellbeing have shown that although there is a good correlation between income and wellbeing at low levels of GDP, beyond a certain point, termed the Easterlin paradox

(di Tella and MacCulloch, 2008) increased GDP does not correspond with increased happiness. A brief examination of published statistics paints a rather bleak picture. One key issue relates to mental health, with up to one in six people in the UK suffering some form of disorder in the course of their lifetime (Rankin, 2004). In 2007, the proportion of the English population that met the criteria for common mental illness was 17.6%, more than half of which were designated as mixed anxiety and depressive disorder (Mental Health Network, 2011). The 'mental health problem' is now recognised across the whole Euro-zone (European Commission, 2005). Additionally, in 2008 almost a quarter of adults in England were classified to be 'clinically obese' (NHS, 2010), a trend projected to continue well into the next decade (National Heart Forum, 2010).

Literature on modern industrialised life shows that people are spending an increasing amount of time indoors (Evans and McCoy, 1998), in environmental conditions controlled for optimal levels of comfort (Shove, 2003). In the UK, between 2007 and 2008, the most common leisure activity for those over sixteen years was watching television (85% of the population: Office for National Statistics, 2010). The increase in media technologies has been blamed for exposing us to a stream of conflicting messages which ultimately lower our sense of wellbeing (Pickering, 2007). Although most adults do declare a wish to engage in more physical activity, 65% replied when asked, that they were most commonly prevented from making active lifestyle choices by work commitments and a shortage of free time (Office for National Statistics, 2010). A general trend towards increasing consumerism has also been confirmed (Hoyer and Naess, 2001), along with the observation that urban development is not moving in a 'sustainable' direction. The deification of consumer culture has been summed up through a reference to shopping centres as 'cathedrals of consumption' (Ritzer, 1999). In addition, authors have proposed that our culture is increasingly individualistic and self-orientated, considering ourselves separate from, and superior to other life forms (Frantz *et al*, 2005). Subsequently, it is proposed, this 'disconnect' from nature (Pretty, 2007) is complicit in emergent health issues, particularly for children who have a greater need for engagement with the natural environment (Louv, 2008).

The discourse on healthy lifestyles identifies multiple factors to be associated with reduced health, including poverty and education. Subsequently the substantial benefits of identifying alternative sources of wellbeing are helping to push research into nature-based quality of life benefits higher up the political agenda (Forest Research, 2010). The restorative benefits of engagement with the natural environment are reported to be an effective antidote to tension caused by modern Western lifestyles. It is advocated that urban living can prove to be "a stressful environment" for citizens, since "...the overall speed and number of impressions cause

hectic lifestyles with little room for rest and contemplation" (Bolund and Hunhammar, 1999: 298). In this case, the recreational and cultural services provided by urban green infrastructure are said to be particularly important for city dwellers (Bolund and Hunhammar, 1999; Chiesura, 2004) especially those associated with presence of trees, which are believed to provide effective opportunities to '...ameliorate detrimental factors related to modern lifestyles' (Nilsson, 2006).

4.1.3 Health and Wellbeing

The Millennium Ecosystem Assessment is based on the premise that ecosystem services, including cultural services, are "indispensable to the wellbeing of all people", and that ecosystem change will have consequences for human health (MA (b), 2005: 1). In order to fully appreciate the scope of this position and how it applies to cultural services it is necessary to understand current trends and prevailing and alternative notions of 'health' and 'wellbeing' in modern Western society. The Millennium ecosystem Assessment advises that human wellbeing, ecosystem services and human health are interrelated concepts (Figure 4:1).

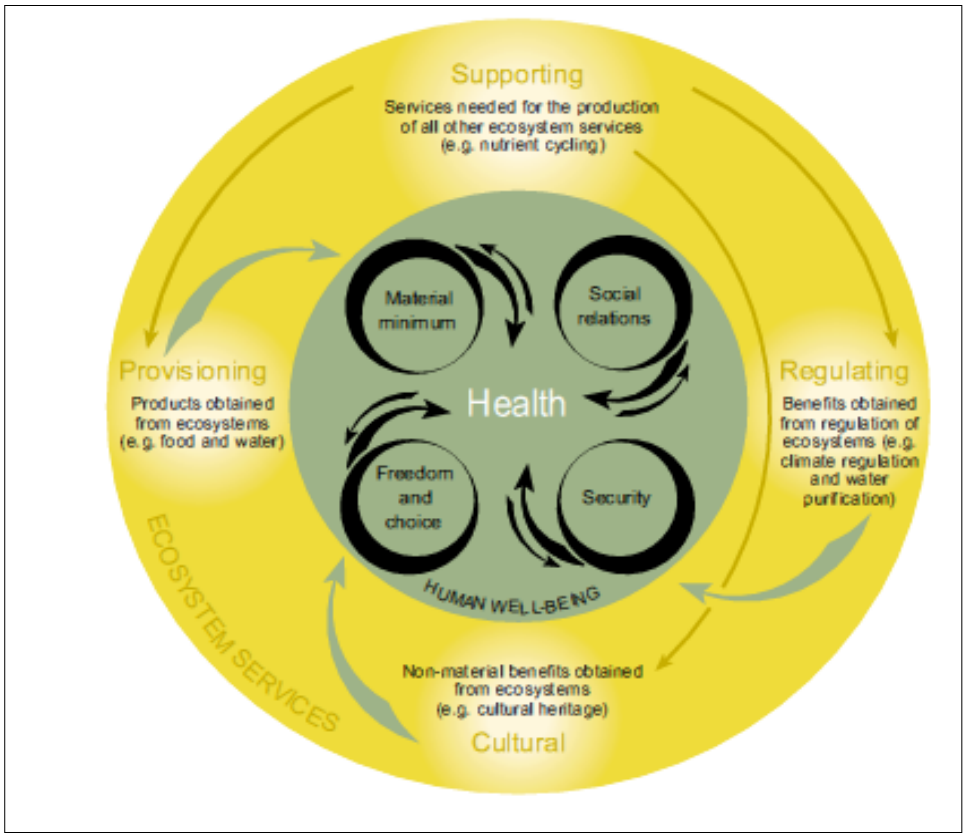

Figure 4:1: MA conception of interrelationship between ecosystem services, aspects of human wellbeing and human health (MA (b), 2005)

A broadly accepted definition of *health* is provided by the World Health Organisation, which defines health as "a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity" (WHO, 1948). However, this definition is not without criticism. Some argue that health cannot be defined as a state at all (Üstün and Jakob, 2005) and might also be viewed as a process of adjustment and sense-making (Haworth and Hart, 2007). The definition is blamed for instigating an approach which perpetuates "...the tendency to define all social problems as medical problems... expecting modern medicine to be the 'final magic-healer of human misery'" (Ryff and Singer, 1998: 3). Western medicine is observed to be mostly founded on studies of illness and negative states (Ryff and Singer, 1998), worthy of criticism for the "...mistaken assumption that the absence of negative processes connotes adaptive functioning" (Urry *et al*, 2004; 367).

However, new academic contributions offer an alternative formulation of human health. Biopsychosocial models of health (Engel, 1977; Lovallo, 2005) consider physical health to be affected by psychological processes and social conditions. Studies show biopsychosocial factors to be relevant in liver disease (Boeka et al 2011) temporomandibular joint disorders (Dougall et al, 2012) Parkinson's disease (Delaney et al, 2012: Hermanns et al, 2012) mood and anxiety disorders (Misri et al, 2012) inflammatory bowel disease (Mikocka-Walus et al, 2012) and coronary heart disease (Ferriss et al, 2012).

The 'positive health agenda' is another an operational perspective which aims to address "wellness of the mind working interactively with the body" (Ryff and Singer, 1998: 23). Specific 'key goods' are identified as being central to human health, these being to have purpose in life, and to have quality connections to others; supported interactively by the possession of self-regard and mastery (Ryff and Singer, 1998: 3). The positive health perspective has three underlying principles. Firstly, health is presented not only as a medical question, but also as a philosophical issue which includes consideration of human values and socially constructed ideals (Ryff and Singer, 2000; 31). The second principle highlights mind-body-behaviour interactions, "...probing the physiological substrates of flourishing; mapping how positive psychological or relational experience is instantiated in neural circuitry, downstream endocrinological and immunological systems, and ultimately culminates in vitality and longevity" (Ryff and Singer, 2000: 30). Finally, positive human health is presented as a 'multidimensional dynamic process', and an "....expression of a broad range of human potentialities: intellectual, social, emotional and physical" (Ryff and Singer, 1998: 2). As such, there are stated to be "...multiple ways to be healthy, and individual lives bring together these key features in uniquely distinctive ways" (Ryff and Singer, 1998: 7).

A further response to the largely negative focus of Western health research comes via the emergent and growing literary accounts of wellbeing. This alternative, complementary view is said to offer "a paradigm that allows those in the academic, policy and user fields to focus on positive outcomes, and how best to realize them" (Haworth and Hart, 2007: 1). The Millennium Ecosystem Assessment provided an overview of formulations of wellbeing (Table 4:2), highlighting five linked components which "…provide the conditions for physical, social, psychological, and spiritual fulfilment" (Alcamo, 2003: 73).

Table 4:2: Constituents of human wellbeing (Alcamo, 2003: 74)

Aspect of wellbeing	**Examples**
Necessary material for a good life	Secure and adequate livelihoods, income and assets, enough food at all times, shelter, furniture, clothing, and access to goods
Health	Being strong, feeling well, and having a healthy physical environment
Good social relations	Social cohesion, mutual respect, good gender and family relations, and the ability to help others and provide for children
Security	Including secure access to natural and other resources, safety of person and possessions, and living in a predictable and controllable environment with security from natural and human-made disasters
Freedom and choice	Having control over what happens and being able to achieve what a person values doing or being

All constituents are said to be experienced and perceived by people depending on their *situation*, and thus reflect geographical, cultural, and ecological circumstances Alcamo, 2003: 3). The idea of *adaptation* is also associated with wellbeing, since it is advised that, "…one condition for personal well-being is the capability to adapt and achieve that which individuals value doing and being in situations of dynamic change" (Alcamo, 2003: 75). Despite this, it is currently understood that "…the interwoven relationship of ecosystems and human wellbeing is insufficiently acknowledged in the wider philosophical, social, and economic wellbeing literature" (Summers *et al*, 2012: 327).

A further view of wellbeing is that it comprises a set of practices, "...something we do together, not something that we each possess" (6, 2007: 128). Within this frame of reference, wellbeing is achieved by the ways that people make sense; the "...guiding tropes that structure sense making, through our everyday rituals and bonds to institutions and individuals" (6, 2007: 128). Within the newly emerging discipline of

positive psychology, factors which influence wellbeing include political systems, geographical area, genetic factors and individual variation (Henry, 2007). A long-term study on wellbeing found that the approach most likely to improve wellbeing was one which acted to 'quiet the mind', achieved through activities such as mindfulness practices, meditation, and fishing (Henry, 2007: 36). Mindfulness practices are now a burgeoning area of positive-health orientated clinical psychology research (Lau *et al*, 2006: Feldman *et al*, 2007: Shapiro, 2009). However, 'wellbeing' is far from straightforward; there being multiple perspectives offered for its meaning (state or process) level (personal, inter-personal or collective) and relationship with time, geography and culture (Haworth and Hart, 2007: 19). Notably, the state of 'wellbeing' is presented as being on a continuum which has, at its opposite pole, the state of poverty, defined as a "pronounced deprivation in wellbeing" (Alcamo, 2003: 3). Since the usual understanding of poverty denotes a lack of money (Thompson, 1998), inclusion of reference to this spectrum is observed as providing further insight into the MA's concurrence with current models which equate economic growth with wellbeing.

4.1.4 Higher Needs

The ecosystem service approach as put forward by de Groot (1992) presents components required for human health as *needs,* which then fall into two categories; physiological and psychological. Physiological needs are given as being the need for oxygen, water, food, physical health, and a healthy unpolluted living environment. Psychological needs are said to reflect the need for mental wellbeing, which is in turn dependent upon on opportunities for cognitive and spiritual development, recreation, the freedom to establish social contacts and status, and the need for a safe future for both present and future generations (de Groot, 1992: 7).

It is observed that de Groot's approach and that of the Millennium Ecosystem Assessment bear strong relation to the theory of human motivation put forward by Maslow (1954). The approach, which presents a synthesis of functionalism, holism and dynamism 'grounded in clinical experience' has given rise to the frequently reproduced *Hierarchy of Needs* model. This model presents an attempt to get closer to a unified set of 'common human characteristics' (Maslow, 1954: 102) shared by people from one culture to another (Figure 4:2).

According to Maslow's theory, humans are motivated by the satisfaction of each category of need in the hierarchy. Once gratified, the need is said to cease playing an active determining role in the person's behaviour, yet each needs only to be satisfied in terms of decreasing percentages, indicating the partial satisfaction of a need is acceptable so long as it exceeds the need below it in the hierarchy.

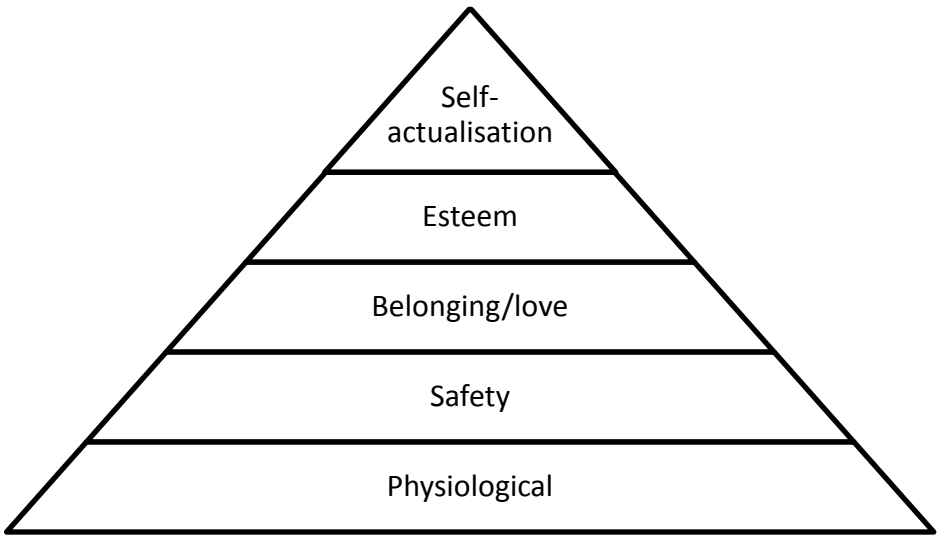

Figure 4:2: Hierarchy of Needs diagram (adapted from Maslow, 1954)

Despite the apparent linear nature of the model, it is stated that the hierarchy is *not proposed to be rigid* (Maslow, 1954: 98), and a number of exceptions apply (Maslow, 1954: 98-100). Self-esteem may be, for example, be a more important motivator than love, dependant on other personality characteristics. A drive to creativity or satisfaction of aesthetic needs may be dominant in certain individuals. In others, levels of aspiration may be permanently depressed, or skewed due to ill health. The long term satisfaction or over-satisfaction of a need may also lessen its potency within the hierarchy, and some behaviour may be multi-motivated (Maslow, 1954: 102).

The hierarchy is later presented as having a dual nature, divided into 'higher' and 'lower' needs (see Maslow, 1954: 147-150). Although the division is not explicitly described, these separate need-groups are stated as having different properties, and are both said to be instinctoid in nature. The higher needs receive greater emphasis within the text, and insights offered appear to fall into three categories. The first, an evolutionary perspective, argues that higher needs are a later phyletic development compared to other species, and are thus inherently human. The second offers a health perspective, and refers to evidence which indicates that the fulfilment of higher needs leads to greater biological efficiency, longevity, and represents a trend away from psychopathology. The third insight gives a social perspective, and states that fulfilment of the higher needs has desirable civic consequences, and is sought after by those who have experienced a range of needs satisfaction.

Fulfilment of the higher needs is linked, Maslow argues, to the process of self-actualisation, and has a variety of beneficial psychological outcomes. Attributes such

as a more efficient perception of reality, acceptance of self and others, increased spontaneity and creativity, psychological stability, philanthropic tendencies, ability to maintain deeper interpersonal relationships, and the development of a democratic character structure are said to be enjoyed by the self-actualised individual (Maslow, 1954: 203-221). However, Maslow does not indicate *how* one becomes self-actualised, only that it is largely a subjective and unconsciously motivated experience.

Fulfilment of the higher needs generally is described as being instinctive, since a "... tremendous mass of evidence indicates the crucial importance of unconscious motivation" (Maslow, 1954: 101). We are told however, that studies of 'psychologically healthy (i.e. fulfilled) people' do indicate that, as a group, they are "...attracted to the mysterious, to the unknown, to the chaotic, unorganized, and unexplained" (Maslow, 1954: 94). Indeed, self-actualised people are regular recipients of a so-called mystic or oceanic experience (Maslow, 1954: 216). This sensation, which bears similarities to convergent discourses of the 'unitative experience' (May, 1982) or 'flow experience' (Csikszentmihalyi, 2000), often encountered whilst outdoors and in the presence of natural elements. This is also closely linked to the notion of 'individuation' (Jung, 1958), "…becoming a single, homogeneous being, and, in so far as 'individuality' embraces our innermost, last, and incomparable uniqueness, it also implies becoming one's own self. We could therefore translate individuation as 'coming to selfhood' or self-actualisation'" (Jung, quoted in Colman, 2006: 372). In accordance with these perspectives, nature has been presented as a setting for personal growth, and as a sacred metaphysical ultimate (Crosby, 2003).

Synthesising the health and wellbeing narratives

As discussed above, there are a number of narratives with which to view health and wellbeing, and these distinctions are important in arguments as to the proposed benefits of cultural services. A standard Western medical approach, whilst acknowledging the importance of mental and social wellbeing, nevertheless focuses largely on the presentation of physical symptoms of disease. Some preventative strategies are recommended to achieve a state of good health (such as government guidelines for nutrition or physical exercise) but healthcare for the majority of people (particularly in the UK) consists of pharmaceutical or surgical intervention to treat illness. The standard of proof and methodological approach required to certify a phenomena relative to medical health may not be lend itself easily to cultural services research, as "a medical, evidence based perspective seeks large scale evaluations using validated health indicators as outcome measures" (Willis and Osman, 2005). Whilst emerging academic research from the positive health agenda offers a paradigm which

may be conducive to cultural services study, it remains to be seen whether this perspective will warrant acceptance into health policy.

Another alternative to the notion of medical health is that of wellbeing. This broader conception includes emotional health and social networks, and encompasses a multitude of contested perspectives which debate the factors leading to wellbeing as a state, or which view the negotiation of relationships and lifestyles themselves to be fundamental to wellbeing as a process. It is observed that complex topics such as spatio-temporal issues, social stratification, the influence of culture, and genetic variation (as shown by literature detailed earlier), all bear a strong relation to the tensions highlighted by cultural services literature. A further approach related to both health and wellbeing is the concept of higher needs (as per Chiesura, 2004), and the proposition that humans are instinctually orientated to progress towards a state of self-actualisation through the fulfilment of those needs. This view goes beyond the concept of health treatment to redress a negative physical state; and further than the aim of wellbeing to achieve positive holistic balance; and instead embraces the comprehensive fulfilment of an individual's potential, and the complete use of human faculties. As such, this may lie outside the remit of policy or law, yet indicate an existential ideal which may be protected and made accessible through institutional constitutions.

4.1.5 Valuation of natural resources

Ecosystem Services approaches are primarily intended for practical application related to the management of ecosystems. Studies which use this framework are generally required to produce information which makes ecosystem services comparable, and which enables cross-department policy and management decision-making. The intention, ultimately, is to manage the 'integrity' of ecosystems (and subsequent benefits) through improved decision making. There are as yet, no widely accepted, uniform evaluation systems, and it not only is it, "…very difficult to quantify ecosystem structure, function, process, formation mechanism" (Jian, 2012: 1794) but there are issues with calculating objective figures since, "…economic terminology has a number of connotations which makes its usefulness for the intended effect questionable… the calculated value of ecosystems and their services is not a robust figure, but varies with the valuation method applied" (Spangenberg and Settele, 2010: 327).

Nevertheless, within Western economic thought decision making processes are used supported by financial information, since clarification of the economic benefits of projects is usually required to understand likely behaviour by markets and identify appropriate interventions for government policy, regulation and resources (Pearce,

1993). The MA, building on previous work, identifies a range of valuation methods. Notions of value which intersect within this on-going assessment include the value as per economic thought, otherwise known as 'utilitarian value'; and non-utilitarian notions of value such as 'ecological value', 'socio-cultural value' and 'intrinsic' or 'existence value'. Each of these types of value are outlined by the MA (Alcamo, 2003), and embody a range of discourses involved in the conservation of natural resources (Table 4:3).

Table 4:3: Arguments for nature conservation and/or sustainable use of nature

Argument	**Basis of argument**
Utilitarian	Natural ecosystems supply many resources and essential commodities
Survival	Continued functioning of natural process are essential to human existence
Educative	Nature increases man's awareness and forms an important part of his understanding
Scientific	Nature provides limitless research opportunities which enable further development
Recreational	Provision of aesthetic and re-creative experience which balance the demands of daily life
Ethical	All beings have an equal right to live, thus human have a stewardship responsibility
Sentimental	Stresses the need to achieve harmony between humans and nature

Utilitarian Value

The discourse of 'utilitarian and non-utilitarian values' provides the underlying paradigm for neo-classical economics. This teleological approach involves "a balancing of goods and bads or of one good against another" in order to maximise wellbeing, or 'utility' (Turner, 1993: 34). People are seen as being utilitarian; that is, they make choices via an expression of preferences in order to improve their individual wellbeing (Spash, 2007). Individuals are perceived to be self-governing, able to exercise decisions based on their *preference* ("...a logical relation between stated or given alternatives", Sagoff, 2004: 58), and make choices which are rational, conscious, and based on sufficient knowledge. The notion of economic value subsequently results from the expression of those utility-based preferences, and the value ascribed to an object, service or entity "...on the basis of what will be exchanged in return" (Spash, 2007: 692).

The process of exchange, usually expressed via the common metric of money, indicates that wealth is to be measured by access to use-values (Stahel, 2005), and that economic affluence be perceived as the route to achieving a well-functioning social order (Jackson, 2005). Analyses presented for policy purposes are often presented in monetary form through the deployment of Total Economic Value (TEV). This functions on the basis that the best allocation of resources is one that maximises people's preferences, since preferences result in wellbeing, and "...anything is a benefit that increases human wellbeing, and anything is a cost that reduces human wellbeing" (Turner, 1993: 93). However, the model is noted as being prone to 'market failure', given the incidence of unintended effects (such as pollution) referred to as 'externalities', and the free-rider problems associated with public goods such as natural capital (Common and Stagl, 2005: 326-327). As a result, "conventional measures of wealth give incorrect indications of the state of wellbeing, leading to misinformed policy actions and ill-advised strategic social consequences" (Alcamo, 2003: 131).

Most of the cultural services of ecosystems are not economically traded and hence their "value" is determined by indirect methodologies. Examples of indirect valuation include Contingent Valuation, whereby hypothetical situations are posed by social survey questionnaire to identify 'Willingness to Pay'; Hedonic Pricing, whereby preferences are revealed by surrogate markets such as housing; and Travel Cost methods whereby benefits are estimated based on cost of travel to a site (de Groot *et al*, 2002; Common and Stagl, 2005). The Travel Cost Method is used most frequently in policy making and land management decisions, and may include features such as statistically significant environmental attributes (Englin *et al*, 2006) parameters (such as distance, fuel, supplies and lodgings) for estimating nonmarket benefits (Douglas and Taylor, 1999) and the identification of classes of benefit such as conservation and use (Liston-Heyes and Heyes, 1999).

Although the utilitarian paradigm is the primary method for allocating resources in market economies, it does have limitations. Firstly, techniques employed to achieve valuation provide a simplified version of reality which is not necessarily accurate. Economists study economic growth by looking at historical data and construct models which replicate and explain major patterns. These models lead to hypotheses which show the most important sets of relationships. However, the high level of complexity of ecosystems and human behaviour means that any form of valuation will be a simplification. Turner (1993: 94) also recognises the implausibility of comparing individual wellbeing through 'interpersonal comparisons of utility'. Indirect valuation methods such as choice experiments may have inappropriate controls or have selected non-relevant attributes. Likewise, a method of 'discounting' used to account for time

bias in preferences can, in the case of natural resources environment, have a skewed long-term effect through the allocation of lower 'weighting' to benefits and costs in the future (Turner, 1993: 95). The results of valuation techniques may also be limited in application. Software may only be appropriate for use in specific contexts (Douglas and Taylor, 1998), and economic language may only be suitable for other initiates of the discipline. In an article entitled 'ecosystem services: from eye opening metaphor to complexity blinder', it is observed that "…the simplicity of the stock-flow framework blinds us to the complexity of the human predicament" (Norgaard, 2010: 1226). It is argued that, whilst the ecosystem services approach is part of a 'larger solution', its "…dominance in our characterization of our situation and the solution is blinding us to the ecological, economic, and political complexities of the challenges we actually face" (Norgaard, 2010: 1226).

The utilitarian paradigm is also contradicted by other well-respected discourses. Whilst methods such as Contingent Valuation and Choice Experiments assume that people are truthful, consistent over time, and have logical preferences, theory from evolutionary perspectives, psychology and psycho-analysis would indicate this is not necessarily the case. Other questions over what is to be classed as ecological, and whether the definitions provided by Western scientists '...encompass the full totality of the values provided by natural resources' (Burger *et al*, 2008) have led to a dichotomy of assuming ecosystems are natural and anything man-made is not. Consequently, arguments to exclude the cultural service concept from ecosystem service classification systems based on an anthropocentric perception of ecological phenomena have begun to gain momentum (Boyd and Banzhaf, 2007; Wallace, 2007; Fisher *et al*, 2009).

Another premise of the current market economy model is that improvement in conditions and wellbeing is predicated on economic growth. The EST discourse endorses this view, although it has been recommended that growth *quality* must change to emphasise substitution, eco-efficiency and dematerialization. However, this has been called into question as a risky strategy, given that (historically) economic growth has been linked to increased consumption (Hoyer and Naess, 2001) and often negative ecological consequences. Thus whilst cultural services can be viewed within a market economy paradigm, it is not the only way of viewing the concept. Alternative critical theories exist which oppose neo-classical economics, such as *complexity* economics and *evolutionary* economics (Personal communication, Andrew Angus, 2010). These perceive economies to be complex, dynamic, in flux and constantly evolving. A further *institutional* perspective argues that the best way to protect and/or enhance artefacts such the natural environment is to move away from

economic valuation, and instead, form institutions to set and govern environmental limits. This has been the case with the designation of "Conservation areas" and "World Heritage Sites", and the banning of some environmental activities.

Non-utilitarian value

Non-utilitarian concepts of ecosystem value include socio-cultural value, associated with historic, national, and religious values, and the closely notion of intrinsic value, attributed purely on ethical or spiritual basis. These non-utilitarian forms of value are referred to by terms such as Cultural Landscape and Cultural Heritage which are used to indicate natural features which are culturally valuable and which cannot readily be substituted (MA, 2005: 54). These features that purportedly '...remind us of our historic roots', work *collectively*, encompassing "...living societies as an integral part of their landscape units" (MA, 2005: 55); and *individually*, in relation to personal relationships with nature and a sense of 'resonance' (Frantz *et al*, 2005). Landscapes are viewed as carriers of collective cultural meanings (Douguet and O'Connor, 2003), or in the case of ancient woodlands, 'unique living catalogues of landscape history' in respect of the insight they provide into past and present human activity (Rotherham, 2007). In the UK, narratives on forests show them to be a symbol of British life; a place to form collective memories (O'Brien, 2004: 39) and an integral part of natural and cultural heritage (Edwards *et al*, 2008: 6).

Socio-cultural ecosystem value may be attributed regardless of how ecologically degraded an area is conceived to be (MA, 2005: 472). However, modern land management techniques which are described to have an "...erosive effect on the character and processes of traditional cultural landscapes" are perceived to affect social structures through decreasing landscape diversity, altered hydrological systems and landscape fragmentation (MA, 2005: 461). However, the level of socio-cultural and intrinsic value attributed to nature is proposed to influence the way people behave towards that environment (Ekins, 2003) as described through theory of environmentally significant behaviours (Stern, 2000). This describes three levels of value; biosperic (intrinsic), altruistic and egoistic; otherwise conceived of as an attitude spectrum which ranges from ecocentrism to anthropocentrism (Kortenkamp & Moore, 2001). The relevance of socio-cultural value to ecological restoration projects has also been postulated to be significant given the likelihood of increased public support for projects which have clearly explicated scientific, historic, cultural and recreational anthropological benefits. (Golet *et al*, 2006).

Non-utilitarian value is stated to be harder to capture through economic valuation, but is nonetheless perceived to '...complement or counter-balance considerations of

utilitarian value" (Alcamo, 2003: 127). Ways of identifying the socio-cultural value of natural areas have included defensive -economic calculation of reduced health costs (Boyle, 2003: 261), or measurement of numbers of designated historic or sacred sites amongst others. (Table 4:4). Whilst socio-cultural quantification techniques include adaptations of economic valuation methods already in use (such as participatory assessment and group contingent valuation), arguments for the measurement of intrinsic value question whether it is ethical to attempt to convert all ecosystem services into monetary values at all.

Table 4:4. Ways of identifying the social value of natural areas (taken from de Groot *et al*, 2003: 194)

Social value	**Descriptors**	**Measurement / assessment methods**
Importance to health	Space for physical activity and psycho-therapeutic effects	Suitability of system to provide benefits Restorative effects on people's performance Socio-economic benefits of reduced health costs
Amenity Value	Cognitive development, mental relaxation, artistic inspiration, aesthetic enjoyment, and recreational benefits	Aesthetic qualities of landscapes Recreational use Artistic use Preference studies
Heritage Value	Reference to personal or collective history, and cultural identity	Historic sites and features Role in cultural landscapes Cultural traditions and knowledge
Spiritual Value	Symbolism, and elements of sacred/ religious significance	Presence of sacred sites/ features Role of nature in ceremonies/ sacred texts
Existence Value	Ethical or 'intrinsic' value, and inter-generational equity (i.e. bequest value)	Presence of voluntary work inc. donations Stated preference methods

Such narratives centre on the premise that the natural order is sacred in its own right, and is not purposeful (Crosby, 2003); thus humans (conceived of as being an integral part of nature) should respect the synergistic community without conceptualising it as a measured resource. However, due to the reliance on quantified data for social management, economic techniques do exist for socio-cultural and intrinsic valuation, although they are perceived to have a greater likelihood of inaccuracy (McComb *et al*,

2006). Metrics for assessment thus focus upon the imposition of legal consequences for "...violating laws prohibiting a market in or otherwise compromising that which is recognised to be intrinsically valuable" (Alcamo, 2003: 144). As such, in Western societies the discourse of which elements are ascribed with intrinsic value may be understood through consideration of features that are protected through legislation and/or designation. Current social acknowledgements of intrinsic or socio-cultural value could thus be linked with statutory rural designations (i.e. Areas of Outstanding Natural Beauty, Local Nature Reserves, Registered Common Land, Scheduled Ancient Monuments and Sites of Special Scientific Interest) and other rural designations (i.e. Community Forests, Green Belt, Heritage Coasts, National Trails and Registered Parks and Gardens). Social acknowledgement of *habitats* which indicate intrinsic and/or socio-cultural value include rural land-based schemes such as Environmentally Sensitive Areas, RSPB Reserves, National Trust Properties, and Woodland Trust Sites; each of which have their own criteria for protection and designation. Biodiversity Action Plans and Habitat Inventories may give insight into what (based on current expert knowledge) society considers to be worth protecting, maintaining or enhancing for benefits they bestow upon society.

The reach of legislative and designation processes is subject to scepticism as it is held that "...the intangible aspects of life experience are not taken into account in our society's conventional measures of social wellbeing. Nor do they feature on the platforms of the major political parties" (Boyden, 2004: 67). However, since policy has to account for instances where the value of services is skewed due to market failure, e.g. externalities (Pearce, 1993), and for services which comprise sources of non-utilitarian value, non-monetary forms of representing value for policy and management decision making purposes are thought to be important. Increasingly the trend for evidence based policy making and knowledge exchange (NERC, 2009) shown that links between scientific discourse (in various forms) and politics are becoming stronger, particular in the area of ecosystem services.

In the UK, ecosystems are currently being systematically assessed and valued via a set of studies commissioned by Defra (Defra (a), 2007; Haines-Young and Potschin, 2008, UK NEA, 2011) aimed at reviewing the potential of the ecosystems approach (EsA) as an integrating policy framework. The main features of the EsA in this form are that it seeks to encourage management within natural limits, for the long term, and at micro and macro scales; whilst recognising that service trade-offs will occur, and stakeholders should be involved in decisions (Ecosystem Services Project, 2011). The 'embedding' of this approach in the political system included actions for organisations such as Natural England, the Environment Agency, and the Forestry Commission, various research councils and forums (Defra (b), 2007), and the recommended review

of all government activities using the principles of the EsA (Haines-Young and Potschin 2008). A government white paper published in 2011 draws on the UK National Ecosystem Assessment to address the way that nature works as a system. This document plans to establish a "…clear institutional framework to achieve the recovery of nature" which includes the introduction of Local Nature Partnerships (LNPs), Nature Improvement Areas (NIAs) reforms of the planning system, and creation of a new Local Green Areas designation (HM Government, 2011).

4.2 Chapter summary

Exploration of the themes identified in key cultural services literature reveals how the cultural service concept is socially constructed, and founded upon a series of evolving academic discourses.

Evolutionary theory posits that humans have adapted to cope with life as a hunter-gatherer and are thus predisposed to relate to nature; however, this is contested due to a shortage of empirical evidence, and relative success of industrialised societies.

Nonetheless, modern lifestyles are observed to be increasingly sedentary, a factor contributing to rising incidences of obesity and poor mental health; problems which may be alleviated by greater levels of outdoor activity and engagement with nature.

There are numerous interpretations of *health* and *wellbeing*, and of these, the focus of the positive health agenda on 'wellness of the mind working interactively with the body' is most akin to some of the reported benefits of engaging with natural environments.

Interacting with nature may enable the fulfilment of *higher needs*, suggested to lead to greater biological efficiency, longevity, desirable civic consequences and ultimately, self-actualisation, the comprehensive realisation of individual potential.

Whilst the utilitarian value of cultural services may be captured through *economic valuation* methods (commonly used in policy and resource management decisions) the *full range* of CS benefits may be best represented through less quantifiable non-utilitarian notions of value.

5 Cultural service as interdisciplinary construct

Chapter 4 reviewed themes which had been identified within the cultural services conceptual framework, in order to allow a deeper and broader understanding of the foundations of this academic concept. The objective of this chapter is to review *associated* journal papers from a diverse disciplinary background which focus on people-nature interactions. The method for the review is described in Chapter 3.3.3. A number of studies support the premise which conceptualises relationships between nature and humans to be a source of wellbeing (Dodds, 1997; Donovan *et al*, 2002; Lees and Evans, 2003; Collar, 2003; Tzoulas *et al*, 2007). These provide a relational evidence base for certain aspects of cultural services, yet notably, most do not share a common language or theoretical base. Studies are connected at a *broad* level, as each involve the psychosocial and/or physiological study of people and nature interaction, but employ a range of research designs and methodological approaches. The studies provide results of relevance to the cultural service concept as discussed below. To aid assimilation, these literatures have been grouped under the six headings of restoration, therapeutic health benefits, religious and metaphysical experience, social and civic benefits, geo-spatial and sensory features, and disservices ().

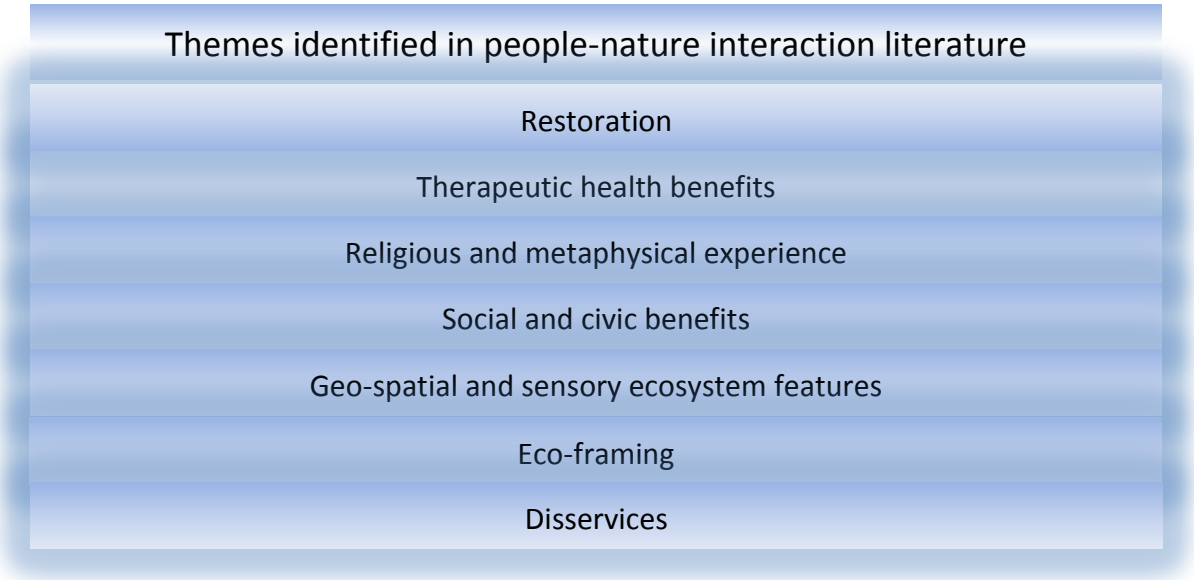

Figure 5:1: Broad themes identified in studies of people-nature interaction

Groupings were attributed according to key words found in the paper title, abstract, or main findings; and group headings were chosen either based on a known area of research (i.e. restoration), or for a term which fitted that group of literatures (i.e.

therapeutic health, metaphysical experience, social and civic benefits, geo-spatial and sensory features, negative services).

5.1 Interdisciplinary themes

5.1.1 Restoration

The psychologically sourced concept of restoration relates to the propensity of natural settings to engage people's attention effortlessly through 'fascination', and to provide opportunities for reflection (Kaplan, 1995). The underlying theory, relating to concepts of voluntary and involuntary attention (James, 1892) asserts that voluntary (or direct) attention requires effort, and is susceptible to fatigue; whilst involuntary fascination is a form of attention that does not require effort, thus has restorative qualities. Natural environments are a source of involuntary fascination if they are able to provide a conceptual shift, are rich in stimulus that is coherent, and are compatible with the purpose of the individual (Kaplan, 1995: 174). Once effortlessly engrossed, individuals may obtain a sense of being away, whilst gaining a sense of scope, connectedness, and familiarity which provide a number of psychological benefits, including improved problem-solving abilities, control over impulses and behaviour, and increased objectivity and ability to reflect on actions. These benefits are also said to lead to less human error, distraction, and irritability (Kaplan, 1995: 170-172).

These findings are echoed across an ever-increasing number of studies, such as research which shows that trees have a mitigating effect on mental fatigue (Kuo and Sullivan, 2001), that contact with nature is a source of tranquillity and reassurance (Macnaghten *et al*, 1998), and that exposure to 'restorative environments' can help maintain and restore attentional capacity (Berto, 2005). A study which introduces the concept of 'favourite place prescriptions' (Korpela and Ylen, 2007) identified determinants of restorative experiences experienced in everyday places; said to be immediateness of use, personal background regarding nature experiences, situational life factors, social relations and preferred settings.

Further studies add to this narrative by proposing that different *types* of nature-exposure affect restoration. A field survey undertaken to study the restoration and stress relief obtained through physical activities in forests and parks found that positive effects increased with the length of visit, and the intensity of sport undertaken (Hansmann *et al*, 2007). Research to compare psycho-physiological stress recovery and restoration results for different environments (including a viewless room) showed that walking in a nature reserve gave the greatest stress reduction to individuals (Hartig *et al*, 2003). Even nature viewed from indoors can offer restorative

opportunities, as shown by a laboratory-based study which found that benefits were gained from viewing wild scenes (Chang *et al*, 2008).

5.1.2 Therapeutic health benefits

It has been shown that contact with biodiversity can increase levels of beneficial protective bacteria on human skin which reduces the risk of allergies (Hanski *et al,* 2012). Research into 'therapeutic landscapes' and the healing rates of breast cancer patients (English *et al*, 2008) found the places people interact with on a daily basis were most important for physical and psychological healing. However, the authors recommend that more work is needed to fully appreciate the *emotional aspects* of landscapes and resultant therapeutic qualities. A psycho-analytic perspective on relations with nature found there to be two therapeutic aspects to this; a passive reception of aesthetic healing from "… natural environments that in themselves become places of healing and restoration", and that associated with active engagement such as when "…therapy is conducted utilising the resources of the natural environment, as in adventure, wilderness and horticultural therapy" (Jordan, 2009: 27).

Work which looked at an association between visiting favourite natural places and perceived (positive) health states (Korpela and Ylen, 2007) found that a crucial factor was the opportunity for visitors to self-regulate their mood. These outcomes may be developed through further examination of self-regulation literature (Carver, 1979; Carver, 2004; Fitzsimons and Bargh, 2004: McCullough and Willoughby, 2009), whereby theories consider the range of cognitive and motivational operations which govern the ability to control behaviour and emotions *consciously* (Carver, 2004) or *unconsciously* (Fitzsimons and Bargh, 2004). It is observed that the self-monitoring aspects of Carver's theory (1979) could lend a potential framework for the exploration of how engagement with therapeutic landscapes may heighten self-attention and increase the regulation of affect (emotion); both acknowledged as contributing to improved health and wellbeing (McCullough and Willoughby, 2009).

Whilst the majority of therapeutic landscape-type research has been found to be based on sensory data (Velarde *et al,* 2007) additional evidence also shows that soundscapes (particularly from richly diverse broadleaf forests) provide opportunities for forest planners to create walking routes with increased therapeutic qualities (Yamada, 2006). Further therapeutic outcomes are indicated through nature-based studies of participation, in forest/ woodland management schemes (Townsend, 2006) stated to be a successful treatment for depression; and in community gardening (Kingsley *et al*, 2009) said to provide a sanctuary from the pressures of the world.

5.1.3 Religious and metaphysical experience

The Millennium Ecosystem Assessment advises of many esoteric and spiritual associations with nature. Forests and trees have many mentions, including "holy forests" (MA, 2005: 463); forests as a place of wisdom, peace and spirituality in eastern traditions; the mystical 'Tree of Life' symbol used in the Kabbalah of esoteric Judaism; African 'sacred groves'; Siberian use of groves for Shamanic rites; the linking of groves with Buddhist temples; and Celts, Slavs and Germans worship of Oak groves (MA, 2005: 465). The 'worldview of ancient philosophies' is said to be "…reflected in the reverence for nature which many traditional societies have even today" (Bhagwat, 2009: 422).

Recent studies promote the narrative that nature is providing a strong metaphysical reference point in current cultural contexts. An exploratory study of transcendent experiences in forest environments (Williams and Harvey, 2001) provides perspectives on a phenomena seemingly analogous to Maslow's 'oceanic experience'. Characteristics of the transcendent forest experience include a strong positive affect, feelings of overcoming the limits of everyday life, a sense of union with the universe, absorption in the significance of the moment, and a sense of timelessness. Woodlands have been referred to as a 'magical place' (O'Brien, 2004), and as a place to have adventures (Burgess, 1995: 21). Place attachment theory suggests that places have deeper meaning for people since "…the physical and the social stay in a 'symbiotic relationship' (Lewicka, 2011: 213). The description of 'mysterious nature reserves' offers an insight into experiences of excitement, beauty, pleasure, poetry, magic, and grace, qualities which are said to be 'essentially immeasurable'(Collar, 2003: 268).

Work on 'sacred natural sites" (places of 'nonmaterial' spiritual significance) presented the five elements of nature traditionally associated with Greek (and Pagan) philosophy (earth, water, fire, air, ether). These were observed to correspond with aspects of nature and natural processes which are currently represented by ecosystem services (Bhagwat, 2009: 419). Cultural services were observed to correspond with the element of ether/ space. It is notable that neither 'ether', space, nor the current view of cultural services have definite shape or volume. The difficulties measuring these elements have parallels with difficulties measuring cultural services, and may be contributory to the perception of this service as being 'nonmaterial'.

Table 5:1: Reconciling ecosystem services with elements of nature (Bhagwat, 2009: 423)

Ancient element of nature	Source of ecosystem function	Ecosystem service delivered
Earth	Lithosphere	Preserving
Water	Hydrosphere	Supporting
Air	Atmosphere	Regulating
Fire	Biosphere	Provisioning
Ether	Space	Cultural

5.1.4 Social and civic benefits

A number of studies suggest that social interactions are influenced by natural features, particularly trees, woods and forests. Trees purportedly help to attract people outdoors, and increase opportunities for social interaction (Coley *et al*, 1997) resource sharing (Kuo, 2003) and community awareness and surveillance (Kuo and Sullivan, 2001). Benefits for children taking part in organised forest events are said to include improved relations to peers (O'Brien and Murray, 2006: 25-28). A study which looked at social change in the National Forest found that the forest proved to be a setting and catalyst for "the reconfiguration of social networks and new forms of connectedness" (Morris and Urry, 2006: 6). Woods also offer relief from social interactions, as provide a space for individuals to be by themselves (Burgess, 1995: 25).

In the context of tourism, planners and managers are said to value woodlands for their ability to absorb activities which are noisy and/or visually intrusive (Martin, 2007: 6). These sound absorption and screening qualities are observed to be indirect forms of cultural services benefit, constituting *sensory censorship* as opposed to sensory stimulation. Forest based eco-recreation and tourism make significant contributions to the economy (Martin, 2007: Edwards *et al*, 2008). Yet forests also provide important non-market social functions. They are an inexpensive form of recreation, particularly important for those on low incomes (O'Brien, 2004: 33). There have been found to be connections between regular green-space users and membership of conservation organisations (Bell *et al,* 2003), and a recognition that forests provide volunteering opportunities with "multiple social, economic and psychological benefits to volunteers and to society" (Edwards *et al*, 2008: 3).

The generation of knowledge is an area well represented in UK forestry. The Forestry Commission has been recognised as "...a leader in the rural recreational field" (Macnaghten *et al*, 1998: 6) and regularly uses sites for research purposes. The

subsequent commitment to multi-purpose forestry and intellectual leadership means that the organisation is a generator of new knowledge about forest ecosystems, and a disseminator of information. Forests are a valuable source of education opportunities for children (O'Brien, 2004: 45), and this aspect of cultural services is developed through schemes such as the 'Forest School', which links to UK National Curriculum objectives and the 'Every Child Matters' framework (O'Brien and Murray, 2006).

5.1.5 Geo-spatial and sensory features of ecosystems

As highlighted by the preceding literatures, research evidence indicates that particular ecosystems are linked with certain social phenomena. In addition to works which show a preference for certain types of scenery (Kaplan and Kaplan, 1989) such as for park-like natural landscapes (MA, 2005: 468), study findings also suggest that the specific features of ecosystems are important variables in the experience of an environment. A preference study which investigated people's responses to six major terrestrial biomes found that whilst deciduous forest produced the highest preference rates, people also responded more favourably to natural settings that possessed a high level of complexity and/or water features (Han, 2007). Research has also shown that the *shape* of trees viewed influences emotional response; of spreading, rounded and conical tree forms, spreading forms were found to elicit the most positive reaction (Lohr and Pearson-Mims, 2006). Tree age, dimensions, and species invoke particular responses, shown by literature and protective orders regarding 'heritage trees' (Jim, 2005), whilst density of planting creates variance in both sense of enclosure (Burgess, 1995) and the size of groups attracted to utilise such areas (Coley *et al*, 1997).

Aspects of biodiversity play a role in the appreciation (Collar 2003) and psychological contribution (Fuller *et al*, 2007) of natural areas; especially the propensity of birds to contribute to cultural services (Whelan *et al*, 2008). Ecosystem health generally may feature as a factor in restorative environments, which are said to require "...extent. (The environment) must... be rich enough and coherent enough so that it constitutes a whole other world" (Kaplan, 1995: 173). The concept of a 'whole other world' again has resonance with Maslow's oceanic experience, and suggests a multi-sensory event which engulfs an individual, resulting in complete engagement and fascination with the external (natural) environment. Research into sensory experience of ecosystems in relation to hedgerows, showed that features such as colour and scent (referred to as 'ephemeral aspects') were appreciated by a variety of stakeholder groups (Oreszczyn and Lane, 110). Other published study findings have indicated that nature smells (Burgess, 1995), nature views (Ulrich, 1984), nature sounds (Yamada, 2006; Irvine *et al*, 2009, O'Connor, 2011), taste (Weiss, 2011) and nature contact (Macnaghten *et al*,

1998; Williams and Harvey, 2001; Bell *et al*, 2003) all register as being significant contributors to human experience of place.

Other physical features which are relevant to the cultural services propensities of natural environments include space, both for physical activity (DoH, 2004) and to walk (Sport England, 2006), the distance from home (Kuo and Sullivan, 2001; Wells, 2000; Wells and Evans, 2003; Nielsen and Hansen, 2007; Mitchell and Popham, 2007), the presence of other people (Children's Society, 2007; Mornement, 2005; Burgess, 1995; Hammitt, 1982) the quality of green space and man-made features (Urban Green Spaces Taskforce, 2002), and the incidence of 'unpleasant' substances such as dirt or debris (Milligan and Bingley, 2007). Although studies show these things to be influential to human experience, most are not presented, it is observed, in a way which indicates causality. It is not known how the interrelationship of these features (which may vary in quantity, frequency, and quality) combine to create different and unique forms of ecosystem experience. It has also been noted that there remains "…scope to develop interdisciplinary studies between medical scientists, sociologists and ethnographers" to explore links between nature and health(O'Brien, 2012: 7), and a need for community-based institutional arrangements and cooperation between policy makers and land managers to overcome spatial mismatches which affect perceptions of landscape (Carmona-Torres *et al*, 2011: 24). As such, the variable described are considered by this thesis to be of indeterminate affect, and to interact in highly complex ways to create cultural services-type phenomena.

5.1.6 Eco-framing

An increasing amount of cultural services-related literature refers to the effects of cognitive schema/ framing/ priming; adopted by this thesis using the term 'eco-framing'. Environmental frames or 'eco-frames' have been described as "…the (typically unconscious) conceptual structures that people have in their brain circuitry to understand environmental issues" (Lakoff, 2011: 74). It is suggested that most people not only lack the overall background system of frames to understand environmental issues, but in many cases, have contradictory frames, leading to a misunderstanding or disregard of environmental advice. The closely related term 'priming' relates to how human brains store information as cognitive units which link to other cognitive units, so forming neural networks of associated concepts. Networks are activated by exposure to a 'primer' (e.g. word, symbol or item) upon which an individual can retrieve the directly linked cognitive unit and associated networks which thereby influence behaviour. In terms of cultural services, this is relevant since the use of primers in research can induce an increased sensitivity to certain phenomena. A recent set of experimental studies which investigated the effects of priming on

perceptions of global warming surmised that perceptions were influenced by deeply-rooted worldviews, heuristics, and cognitive schemas (Joireman *et al*, 2010). A further study showed that the inclusion of dead house plants as an environmental cue in experimental designs strengthened participants' beliefs in global warming; an effect which was noted to increase with the number of dead plants present (Guéguen, 2012: 173).

The influence of eco-framing can also scale up from the individual level and be observed as a socio-cultural phenomenon. One study found there to be a strong relationship between certain beliefs about species (harmlessness, value, and population change) and the desirability of an increase in this species. This finding indicated that conservation policies involving species 'not unambiguously seen as positive' can be difficult to legitimate (Fischer et al, 2011: 126-127), and reveals the importance of environmental frames available to stakeholders. Two studies which looked at forms of forest management found support for specific schemes to be related to cultural knowledge and meanings associated with certain ecosystems and their management (Ryan, 2012: Smith *et al*, 2012). The designation of landmarks has been found to reflect an interplay of perspectives (or cognitive frames), such as those belonging to local people, landowners, experts and regulators (Noonan and Krupka, 2010: 21). Finally, the commonly used term 'landscape' has been observed to be both a conceptual field and something that relates to 'real places'. This is considered important since the *pairing* of the analytical (conceptual) and experiential (real world) make the term "…a catalyst for synthesis in science and for insight in ecological design" (Nassauer, 2012: 221), again showing the importance of eco-framing.

5.1.7 Disservices

In addition to the espoused discourse with describes the positive associations between ecosystems and social benefits, a further narrative presents viewpoints which considers negative aspects of ecosystem interaction. For some (particularly women), green spaces may be places which inspire anxiety. Results of a London-based quantitative study state that 39% of women felt unsafe in the capital's green spaces (Mornement, 2005), and in UK woodlands, perceptions of risk have been described as having 'profound effects' on women's access (Burgess, 1995). This narrative is of particular interest, as the author observes that it is the *perception* of the wood which impacts on behaviour despite the *actual* risk being small. A literature review which consolidated discourses of teenagers and public space brought to light the proposition that the cultural construction of the 'rural idyll' varies both with gender and age. Subsequently, it is noted that teenage girls are excluded from particular opportunities, as "... are often marginalised, compelled to stay outside the boundaries of 'boys'

places' (Travlou, 2003: 12). A review paper (Countryside Agency, 2005) also noted that many ethnic minority groups in Britain do not participate in countryside activities, and showed a lack of baseline information regarding the level and nature of participation for under-represented groups. It has since been found that staff or volunteer led activities and 'facilitated' (supported) access can be crucial in encouraging under-represented groups (e.g. people on low incomes, people with disabilities, women and girls, black and minority ethnic groups, people over 45 and under 16 years of age) to access woodlands (Morris and O'Brien, 2011).

Woods and natural areas are not also perceived to provide positive benefits. A report from a seminar which convened to explore woodland accessibility and crime and safety issues did so in response to concerns over the management of anti-social behaviour, public perceptions of risk, liability for landowners, and the effects of design on safety (O'Brien and Tabbush, 2005). The report concluded the key issues requiring further attention to be responsive planning, the need for specific behaviour research, and increased synergy between relevant organisations, individuals and communities. Furthermore, some city residents, rather than viewing trees as positive natural elements, on the contrary find them to be messy and dangerous; with root systems that disrupt infrastructure, flowers that release allergenic pollen, and are a general liability in storms (Sommer, 2003). More recently, a study reported the financial costs of issues such as vegetative damage to infrastructure, green waste, social nuisances (such as allergenic pollen), obscured views, fear of crime; and environmental disservices such as displacement of native species or pesticide run-off (Escobedo *et al*, 2011). Another study (Spartz and Shaw, 2011) explored place-based meanings related to an arboretum and found that, in addition to positive attributes, a number of concerns were reported, including the misuse of public property, disproportionate or unsightly private or public works development, control of the deer herd, and invasive species migration

In all, this cluster of opinions shows that to view cultural services with purely positive associations is a polemic position which does not represent the full narrative of society-nature interaction. In light of this, the proposition that the EST discourse should include a fifth category- that of 'disservices' (Agbenyega *et al*, 2009) is one which requires consideration. The publication of findings from a study which examined perceptions of community woodlands found that, in addition to benefits, these were also conceived of as places harbouring dog excrement, fly tipping, litter disposal, drug use and other forms of criminal activity (Agbenyega *et al*, 2009: 555). These disservices were postulated to be connected to the *density* of woodland, and the ability of this to create 'private spaces'. The relevance of this to the EST is thus surmised to relate to questions over the prevention of anti-social behaviours (such as

security, education or regular maintenance) and who should pay for these measures. However, another humanistic way to view this finding could be to consider this as the expression of divergent behaviours which have deeper meaning; and the woodland as a symbolic-setting which somehow provides the outlet for expression. Again, the conceptual framework and epistemological basis of studies would appear to be the overriding factor both for how studies are designed, conducted and interpreted; and subsequently how discourses concerning the information function and cultural services of ecosystems are construed.

5.2 Chapter summary

An interdisciplinary literature review has identified cultural services relevant research findings, in the topic areas of restoration, therapeutic health, metaphysical experience, broad social benefits, geo-spatial and sensory features, and disservices.

Nature can be a source of 'involuntary fascination' which has a restorative effect on mental fatigue, resulting in psychological benefits such as improved problem-solving abilities, control over impulses, and an increased ability to reflect on past actions.

Research into 'therapeutic landscapes' has shown there to be a connection between visits to natural places and physical or psychological healing; however, more work is required on the emotional value of landscapes to develop these findings further.

Natural places have spiritual significance for a great many religions in different multi-national contexts, and can inspire 'transcendent experiences' such as a sense of union with the universe, timelessness, and absorption in the significance of the moment.

Natural environments (and forests in particular) can offer a multitude of beneficial social outcomes, such as encouraging resource sharing and community awareness, offering educational opportunities for children, providing sound absorption and screening functions, and contributing to the economy through ecotourism and recreation.

Research shows that nature interactions are multi-sensory, and particular features (e.g. scenery type, biodiversity, ecosystem health, species, planting densities, man-made features) are significant to experience. However, since results do not generally imply causal relationships between features and experiences, these are observed to be variables of indeterminate affect which interact in complex ways.

Evidence exists that certain groups (e.g. women, ethnic minorities) are disinclined to access natural places; and that green space and wooded areas may be perceived as

dangerous, unclean and unsafe. As such, a complete cultural services theory would need to include the concept of 'disservices'.

6 Cultural service as experience of place

This chapter is based on findings from the case study (described in Section 3.3.4). Primary data collected through this case study indicated that cultural services-type phenomena resulted from a process of interaction between people and the multi-habitat site. Building on the work of Canter (1977; cited in Bonnes and Secchiaroli, 1995), this process has been explored through the construct of 'place', phenomena created through the interplay between activities, experiences, and physical features of the environment.

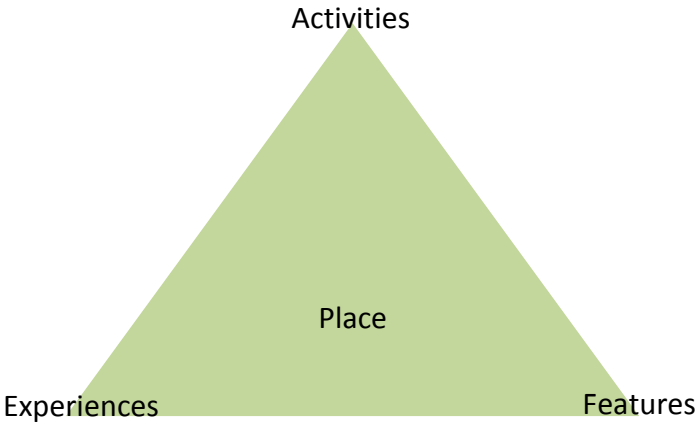

Figure 6:1: Constituents of 'place' (adapted from Canter, 1977; cited in Bonnes and Secchiaroli, 1995: 172)

The construct of place affirms "…the centrality of the area of *meanings* for understanding human behaviour in the environment" (Bonnes and Secchiaroli, 1995: 169). As such, evaluative conceptualisations are here understood in a phenomenological sense as psycho-social *experiences* (Section 3.3.4). The self-reported methods used for data collection thereby enable "…the socio-physical unit of the setting (to find) direct reference in the 'perceived reality' of subjects, rather than in the reality singled out by the researcher" (Bonnes and Secchiaroli, 1995: 169). The objective of this chapter is to describe the activities, physical features and experiences of people who were interviewed in relation to their interactions with the study site, with findings used to explore cultural services as 'place'.

6.1 Activities

Numerous activities have taken place at the case study site historically, and during the time of the study. Past activities have included quarrying for sand and fuller's earth, use of the site for pasture, and forestry (Section 7.1.2). The site has supported tourism activities in the 1800s, and activities relating to the improvement of health for

patients from three (historic) neighbouring convalescent homes; Daneswood Sanatorium, Homewood, and Edgbury (Local Historian, 2010). Botany and conservation activities have occurred, such as assessments for the listing of ancient woodland by the Nature Conservancy Council in 1984, and for certification of County Wildlife Site status in 1994 (County Ecologist, 2007).

Activities observed in the site during the course of the study have included running, horse riding, police horse training, educational and cross country visits from a local school, use of rope swings, motor cross biking, night cycling, forestry working, cherry selling, and wood sculpting (Plate 6:1, Plate 6:2).

Plate 6:1: Selling locally grown cherries, Aspley Woods

Evidence was also found of activities which had taken place at the site overnight, such as remains of parties, and remains of burnt vehicles. A number of activities were also referred to by interviewees, such as joy riding (in stolen cars), Wiccans conducting religious rituals, a famous actor learning his lines, and the land owner driving around the site in an off-road vehicle.

Plate 6:2: Police mounted section vehicle, Longslade car park

Participants from the following activity groups were interviewed for the study: cycling, dog walking, walking, photography, green laning, the use of remote control cars, and orienteering. Interviewees were categorised into four groups according to primary activity; bikers, dog walkers, walkers, and one group of mixed activities (Table 6:1). Activity groups were subdivided further, since there were observed to be three types of biking (downhilling, freeriding and dirtjumping), and five different *purposes* for walking (recreation, transport, civic duty, job, and for therapy). Downhilling involved creating a course down a steep hill side, and riding down this course on a bike in the fastest time possible. Freeriding referred to the riding of mountain bikes on trails around the site, and dirtjumping consisted of using bikes to ride over ramps built from soil and tree stumps found at the site. For the mixed activities, Greenlaning was the term attributed to the activity if driving down an uneven road in a 4x4 vehicle, and occurred on Sandy Lane (a private unmade road running through the study site). The name 'inhabitants' referred to those who lived in houses adjoining the study site. Orienteering involved running a direct route from one location to another, across land between paths.

Table 6:1: Overview of interviewee activities, accompaniment groupings, and interview locations

Group	Interviewee(s)	No. in group	Interview location	Transcript number
Bikers	Father and son groups (downhill, freeride and dirtjump)	5	Old Wvndn Heath (Downhills)	14
		2	Old Wvndn Heath (Dirtjumps)	15
		3	Old Wvndn Heath (Dirtjumps)	16
	M/M pair teenage boys (dirtjump)	2	Old Wvndn Heath (Dirtjumps)	2
		2	Old Wvndn Heath (Dirtjumps)	3
	Males with friends (downhill and freeride)	2	Old Wvndn Heath (Downhills)	1
		3	New Wvdn Heath	4
		4	Old Wvndn Heath (Trails)	12
	Solo male bikers (freeride)	1	Old Wvndn Heath (Trails)	6
		1	New Wvdn Heath	18
Dog walkers	M/F married/ cohabiting couples	2	Browns Wood	9
		2	New Wvdn Heath	17
		2	New Wvdn Heath	20
	Solo male dog walkers	1	Wavendon Wood (Hillfort)	11
		1	Old Wvndn Heath	22
Walkers	Asian family (recreation)	4	Old Wvndn Heath	13
	Male solo walker (transport)	1	New Wvdn Heath (Wavendon Ponds)	21
	M/F couple (civic duty)	2	Aspley Woods	23
	F/F couple (job/ therapy)	2	Old Wvndn Heath(Sandpit)	8
Mixed activities	M/M photographers (work)	2	Sandy Lane	7
	M/F couple playing remote control cars	2	Browns Wood (old car park)	10
	Solo male orienteerer	1	Church Lane	24
	Solo male 4x4 greenlaner	1	Sandy Lane	5
	Solo male lodge inhabitant	1	Longslade Lane	19
Totals		49		24

In addition to these primary activities, a number of interviewees also took part in secondary activities (Table 6:2), such as the supervision of dependants, sitting in peace and quiet, ramp building, and looking at wildlife.

Table 6:2 Primary and secondary activities of interviewees

Transcript number	Primary activity		Secondary activity	No. in group
15	Biking	Dirt jump	Green lane, supervise dependants	2
16			Photography	3
2			Ramp building, photography	2
3			Ramp building, sitting in peace	2
1		Downhill	Freeride	2
14			Freeride, ramp building, photography	5
4		Free ride		3
12				4
6				1
18				1
9	Walk dog		Sitting in peace	2
17			Inhabitation	2
20			Walk, Green Lane	2
11			Look at wildlife	1
22			Conserve site, sit in peace	1
13	Walk			4
21				1
23			Conserve PROW at the site	2
8			Look at wildlife, sit in peace, supervise dependants	2
7	Photograph		Green Lane, sit in peace	2
10	Remote control cars		Walk	2
24	Orienteerer			1
5	Greenlane			1
19	Inhabitation		Walk	1

Some activities required equipment. Specialist off-road bikes were needed for cycling activities, with protective safety clothing and tools (such as spades) also required for downhilling and dirtjumping. Greenlaning required an appropriate off-road vehicle, and orienteering appropriate off-path shoes. Photographers needed cameras, and a

couple who were walking for the Ramblers Association (to report and protect the public rights of way network at the site) required a map and pen to mark off routes, and one lady used Nordic walking poles. Activities differed widely in the level of physical exertion, speed, sensory stimulation involved, and physical features interacted with, as described below.

In addition to those interviewed, a number of other individuals and activities were referred to (by interviewees) in association with the study site, as detailed in Table 6:3.

Table 6:3: Individuals referred to by interviewees, not present at time of study

Group	Individuals mentioned (and by which interviewee)
Landowners	Duchess of Bedford (22); the Old Duke (22); the estate (12, 4, 15, 14); the land owner (12, 1)
Authorities	Ranger / wardens (22, 6, 12, 1, 2, 14); security (1,22); health and safety executive (12, 1); insurance companies (12); own boss (4, 7); parents (3, 2); wives (1, 6)
Emergency services	Police (7, 22); fire-fighters (7); air ambulance (2); hospital (14, 4); military (19, 22)
Religious	Wiccans (7); CoE bishop (22); Jews (22)
NGOs	Forestry commission/ national trust (12, 5); Ramblers Association (23)
Community groups	Children from local school (22); Villagers (20, 12, 22); Milton Keynes people (20); local disabled people (8); Chicksands bikers (1, 2, 16)
Antisocial activities	Thieves/joyriders (7, 22); those engaged in sexual activities (7, 4); people having parties (10); intimidating people- i.e. a certain man (9), motor bikers (10, 22, 1), people who have dangerous dogs (20), strangers (17)
Other activity groups	Firewood collecting couple (9); horse riders (22); conservationists (11); golfers (9); pedestrians (12, 1); runners (24, 4); professionals- i.e. actors (22); scientists (17, 6); pro/ semi-pro bikers (12, 1)

Furthermore, experts interviewed for the thesis (detailed in Table 3:11) showed a number of professional activities associated with the site, such as ecological assessments, land planning exercises and rangering. Although these individuals do not form part of the findings of this chapter, they reveal the wide scope for activity pursuits which occur within the study-site.

6.2 Physical features

This section describes the physical features of the site, referred to by visitor and expert interviewees in relation to their activities. They are considered in terms of 'natural' features, anthropogenic features, and the perceptual aspects of features.

6.2.1 Natural and semi-natural features

The key natural and semi-natural features referred to by interviewees were divided into the following subgroups: topography, soils, land cover, wildlife and hydrology.

Topography

The site topography was a crucial component for a variety of activities. For downhilling, during which "…you form a route from the top to the bottom, then you try to get down the hill as fast as possible" (14). Steep slopes were a prerequisite to the activity, and one downhiller travelled from Essex to the site regularly specifically due to the suitability of the hills (1). Hills were also important for free riding (4, 6, and 12). The site was suggested as being particularly good, due to the "…*hills; the steep elevation over a short distance*" (12). 'Elevation' was described as "essential", and a "…*good range of hills to ride, for experienced riders" was said to be desirable so they "…can use the bike properly*" (12). Small scale hills were also preferred for playing with remote control cars as added interest and created 'obstacles' to go round (10). The undulating surface topography of Old Wavendon Heath (caused by the compaction of soil above historic fulling pits) was referred to in an expert interview. It was explained that, "*I asked the warden about (the indentation from the fulling pits), 'cause he said 'oh people have always said it's where old trees have fallen over' he said, but we know there weren't old trees here. They'd have had to have big huge big Oaks probably to make these depressions. And also, he said, they're a different shape…when you see a tree fall over it leaves a different shape to what these are, which is why we know they're not old trees*" (Geology Group Events Coordinator, 2009). The story of the 'hug fallen Oaks' given to explain the presence of the indentations (illustrated in Plate 7:6) is observed to be equivalent to a modern day folklore.

For people trying to improve their fitness such as through biking or running the "*undulating landscape*" was advised to give a better workout (6), and it was perceived that "…*hills make it hard work. Hard work is a good thing you see, it gets you fit. You get a good workout*" (24). However, for others the 'hard work caused by the hills was a cause for 'grumbling' (8) and inspired exclamations such as "*ouch*" after biking to the top of a hill (10). There appeared to be a perceptual element in the interpretation of 'hills', as shown by one comment from a lady walking her dog; "…*It's a nice walk. It's*

not that hilly" (9). It was thus noted that some parts of the site were considerably flat, and consisted of a "*wide open space*" (10) (Plate 6:3), and that subsequently it was a choice of the visitor as to which parts they visited. Notably, the word 'terrain' was used presumably to describe a combination of topography, and land cover with the terrain of the site being perceived as particularly suitable for mountain biking (12) and the use of 4x4 cars (7).

Plate 6:3: 'Wide open space'; restored quarry land, Aspley Woods

An expert perspective on topography provided a different insight into this ecological, and it was advised that, "*an outcrop is where rock is exposed at the surface, so you can actually see it, and outcrop and exposure are the same things. You can actually physically see the rock at the surface. And what you can see here, rather than having to creep under that little recess, is that these rocks are layered. You can see how the parallel, sub-parallel layerings that represent the position of the sea bed at any one time, when these rocks were being laid down on the bottom of the sea. And they were laid down in these sub-horizontal layers. But if you look carefully you can see little lines going up (points) through here at a slight angle to these main, what we call bedding planes. These are the horizontal (pause) can you just see a slight angle coming up through here, and again down through here*?" The description here has a higher level of detail, and uses specialist terminology to depict the visual representations and processes contributing to the development of the bedrock.

Soils

Soil, 'dirt' or 'mud' was mentioned regularly by cyclists in connection to their activity (1, 2, 3, 12, and 14) (Plate 6:4). Some people stated how they "…*like the dirt*" (1), or "…*like getting covered in sand and dirt*" (4). Soil type was perceived to be important in relation to the building of ramps since "…*where it's too sandy, you can't build too well. If it's 'loam' it shifts around too much*" (14), and consequently "…*this soil… sand and iron oxide… is good for building*" (12).

Plate 6:4: Dirt jumping, Old Wavendon Heath bike track

Other sensory benefits which resulted from soil type included from mud the sensation of falling on sand (2), running on sandy soil (24), and the aesthetic enhancement given to mud-spattered 4x4 cars regarding sales photographs (7). The descriptions of soil given through expert interviews differed considerably. The Geology Sites Manager (2009) explained that, "…*the grains of sand, this stuff, these grains are made of quartz, silica, pure silica. They're very fine grains. You can hardly even feel that they're sandy. Very, very fine… the whole thing that's holding these things together to make these blocks of thick hard sand, is, the whole thing is cemented by … a whole range of iron minerals*." This perspective outlines mineral properties and subsequent sensory (especially textural) experience in combination with specialist knowledge. A further comment used an abundance of visually descriptive terms to refer to the soil type, "…*it*

gives it this kind of very distinctive yellowy brown colour. In some cases it's almost purpley black, where you get a concentration of these iron minerals- you feel how heavy that is, and that's got a high concentration of a kind of iron cement… you can see it's almost glistening as if it's metallic, and that's because it's got such a high concentration of iron" (Geology Sites Manager, 2009). It is possible that the educational background of this gentleman gave him an increased vocabulary with which to interpret and describe elements of the study site. Some visitors mentioned drainage as a benefit associated with the soil type at the study site, such as for biking (12) and walking (20). This was supported by expert interview data, where it was suggested that, "*…people go there because it's good draining, good drainage on the paths, so they can ride their horses and bikes without getting too muddy and bogged down. Other places, if it's clay, they'll, it'll be really nasty and a horrible site to ride a horse*" (Ranger, 2009). However, this was not an opinion held by all, since it was suggested "*…in the rain it's seriously muddy! The sand gets wet, and the water just sits on top- it doesn't soak in, so you can't walk*" (10).

Land cover

Most visitors mentioned aspects of the land-cover as being salient and important in their experience of this site. A differentiation between habitat types was identified by visitors who noted the presence of undergrowth (9), a tree canopy (10), and ferns (1, 12). These broad terms were developed further by experts who explained that, "*…ultimately it would want to make oak/birch woodland if left to its own devices; because Scots pines that grow on there are not (native)…the naturally occurring vegetation would've been some kind of Oak/ Birch woodland… the alternative is a soil supporting heathland, dominated by heather and a certain amount of bilberry- quite a rare plant in Beds. There is hardly any Bilberry in Beds because it grows on really acid soils and we don't have many acid soils*" (County Ecologist, 2007). This perspective on habitat succession and the links between soil type and specific species was particular to expert interviews, such as "*…the key interest of the site is the potential for heathland…even now when the trees are felled or along some of the rides that heath still exists, or it will sort of make a comeback. You've got Heather, Bilberry… it'll grow naturally*" (Ecologist, 2009). No visitors displayed evidence they understood this connection, or were able to identify particular species.

In relation to woodland types, one visitor who said he "*…enjoyed a good woodland walk*" offered that "*…I prefer the broadleaf, but I realise it needs all types to work. The conifer plantation doesn't detract from my enjoyment; I like the difference*" (11). The orienteerer had a preference for conifer woods in particular however, stating "*…I like the woods. Not marshy areas or through bracken though. Just in the trees. There's a*

huge difference between types of trees. Planted ones, plantation, is better, 'cause there's less undergrowth and insects… Oak woods aren't so nice" (24). In this case, the preference was directly related to the activity of orienteering, which involved running directly from one point to another, thus off the paths and through the undergrowth. This position was supported by expert interview material, since it was advised that, "*…it doesn't matter that people roam around 95% of the woodlands because there's nothing really there. It's just conifer plantation woodland or broadleaved woodland, and they're not actually doing any harm. It's just that 5% of areas where you've got lots of bluebells. Where you've got er, sphagnum moss*." (Ranger, 2009). This shows that a relatively small amount of species at the study site are considered (by this interviewee) to have true ecological value. This perspective was however noted to be an ecological perspective, since "…the (Greensand) Trust does not condone illegal access on any private land" (personal communication Director of Development, 2012). The reference to 'sphagnum moss' was also repeated in another expert interview in reference to the SSSI; "*…basically this flush that developed, it got colonised by all these sphagnums and all these uncommon plants of sort of bogs and acid wetlands*…" (Ecologist, 2009). This level of insight and nomenclature was particular to professionals working with the site.

An aesthetic appreciation of the *view* of trees was held by many visitors to be important to their visit. The view of the trees was described as being "*picturesque*" (7), "*aesthetically pleasing*" (5, 18) and "*…cool*" due to them being "*…unusually tall*" (12). Two teenage dirt jumpers agreed that they "*…like the look of the woods*" (3), whilst one father photographing his dirt jumping teenage sons offered that the trees "*…make better scenery for photos*" (14), an observation seconded by the car photographers (7). The description of trees given by the Forestry Manager was considerably different to other perspectives on trees, as it was advised that, "*…my predecessor used to carry a much higher stocking than I did. So the result is the trees are actually quite thin and drawn up…whereas generally I would have opened them up and, I mean, for a P26 standard, I would have expected a sort a lesser stocking and, and, a bigger girth on the trees*" (Forestry Manager, 2009). This emphasis on planting density and the girth of trees was not shared by other visitors or experts. However, some visitors did mention the obscuring of view caused by dense ferns and trees. The dangers associated with falling off a bike and being unseen "*…for hours*" (1), or an increased risk of collision (12) were both attributed to the height of the ferns, whilst the density of the trees was perceived to conceal "gross" activities such as "…dogging" (4). Conversely, the tree density was perceived to offer protection from the elements. It was observed that the "*…overhead tree canopy protects you from the elements*" (10), that *"…trees shield you from the weather*" (20), and "*…keep off the rain and wind*" (2),

and that "…*if there weren't any trees it would get too hot in the summer*" (14) (Plate 6:5). It was further noted that the sound of roads was minimised at the site due to the dense land-cover (22).

Further effects of tree density were described by the Forestry Manager through the comment, "*You can put a lot of people in that area because it almost a three-dimensional structure. You are not aware of them being there, particularly bumping into people. If you take the trees away, you'd probably be quite impressed by the number of people that are there in the day, particularly on the weekend…. (it's) a function of the screening. The trees make it very difficult to get a handle on people*" (2010). This statement also focuses on the propensities of dense tree cover to conceal recreational users, but presents this as a positive 'function', in contrast to visitor perceptions of concealment which tended to be as a negative by-product.

Plate 6:5: Light beaming through the tree canopy, Aspley Woods

The site tree cover was also found to have other sensory and functional values related to activity. Across all types of biking trees were perceived to be important as they "…*provide obstacles to go round. If it was purely open, no ferns or trees, just a big bowl, it would be boring. You get an adrenalin rush from just missing a tree and it makes a whistling sound as you go past*" (1). It was reported to be "…*better dodging the trees*" (14), and advised that trees were "…*handy to grab when you're falling down a cliff*!" (2). One gentleman, a dog walker, ventured that he could "…*forest navigate"*

(22). In relation to the 'ancient' aspects of the site, one visitor commented that, *"…the area is ancient"* (11). Whilst no visitors mentioned ancient woodland, this term was used by three experts, all of whom worked in the area of ecology. It was advised that, "*Browns Wood is semi-ancient natural woodland*", (Ranger, 2009); that, "*I think that probably was ancient woodland, Wavendon Wood*" (Ecologist, 2009); and that, "*…this area here- Aspley Wood, was ancient woodland, until the fuller's earth was dug out from underneath it… that destroyed all the ancient woodland*" (County Ecologist, 2007). Thus it is the opinion of these experts that Browns Wood is currently populated by ancient woodland, whilst Aspley Wood and Wavendon Wood used to contain ancient woodland. A definition was also provided of the meaning of the term, this being, "*…if it's been there since 1600 then it would be considered ancient woodland*" (Ecologist, 2009). From the perspective of the County Ecologist, the naturally regenerating land cover around plantation woodland also had the capacity to be 'ancient', as explained thus; "*…what's happened is that somebody has taken away the tree element and replanted that wood with the same or different trees. Trees are only, I mean, yes they create the structure of the wood but the understory plants, the Dogwood, Hazel and so on won't have been replanted. The bluebells, all things that live on those insects, that live in in the trees will have persisted, even though somebody took out all the Oak and Ash trees and put back Field Maple and or something… They're still ancient."* (2007)

Hydrology

Water did not present as an important feature of the site for many visitors, perhaps given the absence of any rivers, streams, lakes or prominent ponds. However, two groups of cyclists mentioned enjoying going through puddles (3, 4) and one male photographer reported how other people ('Wiccan's) like the site because "it used to be all sea" (7). The man who lived on the edge of the wood (Longslade Lodge) reminisced how Wavendon Heath Ponds (SSSI) "*…is marsh now rather than pond*", and how he "*…remembers when they used to be full*" (19) (illustrated by Plate 6:6). The origins of the ponds were also recalled by a site expert, who advised that, "*the ex-fire ponds, three of them, and the surrounding sort of swampy boggy area… I think there is a fair chance that those ponds were put in initially… they're man-made, to put water on the heath, because if you're planting a conifer plantation, you very often need a source of water so that if there's any, there's a risk of fire in that sort of situation, a dry, heathy environment. There's quite a lot of conifer plantation in the country where you'll find sumps, concrete sumps full of water which were originally put in to keep water on the site so that if you do get a fire you have got a chance of putting it out."* (County Ecologist, 2007).

Plate 6:6: 'The Pools' 1950s (postcard from the collection of Paul Cox)

These comments show this manmade area naturally repopulated with rare plants, which led to its status as a SSSI, but made it identifiable as a 'marsh' rather than a 'pond' (Plate 6:7).

Plate 6:7: Wavendon Heath Ponds SSSI 2012

A detailed description was offered by the Country ecologist as to the source of water for the ponds, advised to be, *"… water that comes out of the sandstone, so the water is predominantly acid…. It appears to be what's called a perched water table, which means that the rain falling on Wavendon Heath percolates into the ground, into the sand, finds an impervious layer- probably of some kind of iron-stone concretion or something within the sand, and flows out of the side of the hill where those little ponds are. So you get surface run off, but you also get this water percolating through the sand, hitting a barrier, travelling out through into those ponds, those little springs" (*County Ecologist, 2007). A further explanation was offered for the emergence of wet flushes at Aspley Woods, this being, "*a lot of that is has just made itself. When they (*the mineral company*), when they filled it in and capped it, they didn't do proper drainage…what they did with this one was (they) sort of topped it, stopped it, and put stuff over the top. Then they drove these big vehicles all over it to seal it and compact it. Unfortunately they didn't allow drainage*" (Ranger, 2009). In contrast, no wet flushes or ponds were referred to by any site visitors, despite a number of hydrological features being present, including i) a wet flush in Old Wavendon Heath, ii) a wet flush in New Wavendon Heath (Plate 6:8), iii) a series of wet flushes in Aspley Woods, and iv) a pond behind the quarry building in Aspley Woods (Plate 6:9).

Plate 6:8: Wet flush, New Wavendon Heath

Plate 6:9: Semi-natural pond, Aspley Woods

Wildlife

Appreciation of the site 'wildlife' (1, 3, 6, 8, 10, 11, and 18) was widespread across all activity groups. In particular, people mentioned their enjoyment at seeing stoats (1) Muntjac deer (1, 10, 11, and 20) and birds (3, 22, and 24). A number of species were cited which might inhabit the heathland aspects of the study site, as, "*…certainly you'd get more reptiles on heathland. I mean we get adders up here and slow worms… common lizards… amphibians, frogs, toads and newts*…" (Ecologist, 2009). A perspective was also given on the effect of recreational use on this habitat, which is home to, "*… invertebrates that live in the open sandy conditions of heath land, some of them obvious things like tiger beetles occur there. They nest in holes in the solid sand. If the solid sand is reduced to mobile sand by the passage of feet or horses' feet, and then the other bits of solid sand are then trampled on. Then their breeding is likely to be affected, and their hunting behaviour is likely to be affected*." These perspectives represented specialist knowledge which was particular to expert ecologists, and not reflected through interviews with the public or other experts.

A few visitors mentioned wildlife they had encountered that they did not enjoy, namely a swarm of bees (12), ticks, (22, 24), and a leopard (20). Additionally, for some dog walkers the sighting of a deer was not enjoyable as provoked their (off leash) dogs

to give chase, causing anxiety for the owner waiting for the dog to return (9, 17, 22). Conversely, for the Ecologist, off leash dogs provided a source of concern, as "*…dogs off leads, they disturb ground nesting birds. I mean, Wavendon Heath used to be one of the only sites where Nightjars used to breed. And they're a ground nesting heathland bird, but I mean, they haven't bred up there for some years" (Ecologist, 2009).* This shows that the perceptions of wildlife and animals is contextually related and varies significantly between individuals.

Air and climate

A number of references were made to air. There was a general perception that breathing 'fresh' air (7, 22), 'pine air' (20), and oxygenated air (3) produced by the trees at the woodland site was 'good for you' (3). Visitors mentioned they enjoyed being out in the open (7, 21), and out in the sun and air (12). There appeared to be a connection between activities undertaken at the site and the perceived effects of the weather, most significantly in relation to rain. For many cyclists it was advised that cool, damp weather was the best (1, 2, 4, 12) since "… *cool weather stops you overheating in your body armour*" (1). However, there was a limit to this since "…*if it's too wet you lack grip*" (12), and "…*rain is fun, but it wrecks the brakes, that's when it starts to get expensive*" (4). Drier weather made it easier to dirt jump (2) and was agreed to be less slippery, which reduced the risk of crashing (1). People engaged in walking activities (who mentioned the weather) only walked in dry conditions (13, 21). Most participants in other activities were happy to do so in any weather conditions.

An expert perspective on the weather was offered in relation to, "*Wavendon Heath Ponds* (which may*)... be deprived of water at the moment because the surrounding catchment is covered in big conifer trees. The big conifer trees intercept all but heaviest rain fall which is why you can go stand under them when its drizzly rain and you don't get wet because it's all landing on the on the needles and so on*" (County Ecologist, 2007). This offers a rational for why the SSSI site is no longer a recognisable 'pond'; this being related to the land-use of the surrounding catchment for commercial forestry. The two men photographing 4x4 cars for their car dealership suggested that snow was desirable for photographs (7). For the orienteerer and dog walkers (20, 22), regularity was more important than weather. The orienteerer explained that,"…*if I miss a day through rain, often there's 2 wet days in a row, so I shorten the run rather than miss*" (24), whilst a dog walker mused that "…*you can tell a dog owner from a dog lover; sleet and snow, who's out? The dog lover*" (22).

6.2.2 Anthropological features

In addition to the natural and semi-natural features described, a number of people mentioned features of the site which were man-influenced or man-made.

Paths

Some visitors mentioned the path network, both the large tracks (4), and the small path network (17, 23) (Plate 6:10). For the one disabled lady visitor interviewed (8), the paths were stated to be both 'fine' for her and for 2 other disabled ladies who come to the site. However, it was stated that this lady "…*used to find it hard getting over the stile*", and that the site would most likely be inaccessible for someone with profound mobility problems.

Plate 6:10: Winding path through conifers, Aspley Woods

Experts opinions on the site varied from visitor perspectives on the amount of detail provided. The age of paths around the hillfort was mentioned by the Ranger, who explained that, "*Danesborough Hillfort is 2000 years old, an Anglo-Saxon hillfort … it's Iron Age. So you've got paths running from that which are 2000 years old at least"*

*(*2009). The Country Ecologist gave a description of the effect of recreational path use on heathland at the site, saying, "…t*he paths are very heavily trampled. People look for solid ground to walk on so once they get rather loose sand in the middle, they may move to the edges which is where the heath land is. You can walk along there and see the heath land, the heathy bits getting trampled to death***.** *And then you get heavy rainstorm and it runs into the (trampled part) because the path has got hollowed out a bit by the passage of feet. The water gets, runs in that, and picks up the loose sand and creates a gully. And it dumps that loose sand somewhere else, so you end up with something that is something less walkable than it was before.*" This detailed account of the impacts of recreation was particular to this individual.

The differences between mapped and unmapped paths were highlighted by site experts. It was advised that, when searching for the historic fulling pits, the Geology Group Events Coordinator*"… generally, I have a sense of where, which direction I need to be in, and then I just keep going like this on the paths until I get there. There's so many of these paths though, and hardly any of them are on the map. The only ones on the map are the main ones, and the rest of the site is just riddled with this little network of paths*" (2009). Additionally, the complexity of the path network was emphasised by comments made when discussing the site with the Ranger, whereby it was said, "*…there's a couple of paths, there's one, there's an unofficial one to the right, there's a more official one which is a public footpath that direction, and then there's one right in front of you which is again a unofficial one*" (2009), a comment which draws attention to the importance of mapping and designation procedures for formalising public paths.

Built artefacts

Other manmade artefacts which were mentioned in relation to the site included the Iron Age fort (11, 20), Sandy Lane (in relation to green laning) (5, 7, 20), the nearby (historic) convalescent homes (20, 22) and hidden World War II bunkers (22). In relation to biking, the hand-made dirt jumps built *"… around 2000*" (12) were an important component of this activity (Plate 6:11), with 'building' being described as, "*… essentially about forming the land*" (3), since *"…you form the land into a shape*" (14).

The historic building of wooden structures related to 'North Shore' style biking, which *"…originated in Vancouver, Canada, designed in steep, temperate rain forests… basically bridges up in the air*" (12) were noted to have been removed from the site (1, 12). The building and removal of these structures was confirmed by the Forestry Manager who said,"…*you'd be surprised the way they turn up. I mean we had a major structure turn up at the golf course, these guys must of been active for a couple of*

months. It was probably about 30-40 metres in total for all the sections, and of course we had to take it all down again. It staggers me the amount of time and effort these guys are willing to invest in it" (Forestry Manager, 2010).

Plate 6:11: Dirt jump doubles, Old Wavendon Heath

Regarding Danesborough Hillfort, it was advised by one expert that, "*The Iron Age hillfort is now subject to tree growth, which in the long term will cause considerable damage. The monument requires remedial works to both protect and preserve the feature but also to make it a feature"* (* Countryside access staff member, 2009), a position which questions the effect of forestry practices on this scheduled ancient monument. During a visit to the site to locate the historic fulling pits, it was explained how, "*…we originally thought that was the original fulling pits, but I thought no, it can't be, because it's just sand. These fulling pits that I'd read about were big holes in the ground, they were twelve metres across, and they went down about twenty metres, and went in a big bell shape at the bottom, till it was unsafe to dig. Then they'd come out of that one, move twenty metres or so the other way" (*Geology Group Events Coordinator, 2009). The specialised knowledge required to identify these pits made these historic artefacts difficult to locate, and shows the need for expert perspectives to identify particular sources of value.

Land Use

Various types of land use activities were referred to, such as quarrying (4, 12), watching golf adjacent to the site (9) the closed car park as a play space (10), and forestry (6, 11, and 22).

The fuller's earth quarry was described by the landowner as, "*…a mammoth hole…like a bomb had gone off in there when they were working. It was incredible*." (2010). This significant contour provided by the quarry were valued by some mountain biking visitors, who commented that, "*…they should have left it alone. Not filled it. It's just a featureless lump of land now*" (4). The same group of men also agreed that the forestry practices have had a big impact on their experience, with one using dramatic language to explain that "*…there's this uniform tree planting. Then machines come along and devastate it. They make furrows- I call it 'lumps and stumps. It looks like it's been blown up*" (4). In a personal communication with the local historian Paul Cox, a further perspective on uniform tree-planting revealed that, "…it's a little odd sometimes when you're, when you're walking along and you, you realise that it's all the rows, it's all in dead straight rows. And I appreciate why they do it, but it takes away some of the thought of, some of the freedom and the fact that you're in an uncontrolled space, when you suddenly realise that this is quite controlled*"* (personal communication Paul Cox, 2011). This reference to the relationship between the experience of 'controlled space' (through uniform planting schemes) and freedom is particularly interesting, since introduces the notion that 'wildness' is an important concept in addition to the usual divides of rural/ countryside, or semi-natural/ natural.

6.2.3 Perceptual aspects of features

'Naturalness'

A recurrent theme emerged, that 'man-made' artefacts somehow spoiled the experience of the 'natural' site, such as *"… it's natural but it's spoilt by the fence. Nothing else is man-made; the barbed wire spoils it*" (11), and "*…manmade stuff spoils it. I like the more natural stuff. There were built structures here- built out of timber and that, but they took them down… Now it's just dirt. We like the dirt*" (1). This position was also held by the landowner, who commented that, "*Its peacefulness and nature number one, that's how I would put it. If you want facilities you can go to other places, like a Country Park. What people enjoy is 'natural'*"(2010).

A contrast was made by some visitors between the 'man-made' aspects of other sites and the 'naturalness' of the study site. Visitors mentioned how, *"… this is the nicest place for a good walk, other places too man-made*" (8), how "*…this place is brilliant, it's*

all natural stuff" (1), and how other woods are "*…man-made, and that spoils other places. They're much busier, and they're not as fun. They're more built up, there are more houses around and work buildings. There are less people here, and it's more natural*" (10). This view was upheld by the Property Consultant as marking the study site out to be 'unique', since it was advised that, "*We do have quite a lot of access areas but many of them are more commercialised. I think perhaps the lack of facilities in Aspley Woods is unique*." However, in relation to the management of the public access agreement (discussed in Chapter 8.2), problems with car parking and funding led to a suggestions from the local councils to construct facilities in the site. It was at one stage proposed that, "o*ne possible solution to the parking problem is to construct a small car park in the wood purely serving mountain bike users. A refreshment facility could operate in the car park and possibly bike hire both bringing in valuable income. A more adventurous scheme would involve the development of a visitor centre, toilets etc. but this would bring in more commercial activities which are not acceptable to the estate and probably not the local population*" (* Countryside access staff member, 2009). Although these plans were not implemented, these statements show that practical management needs may not always converge with the needs of other parties (e.g. the landowner and visitors) for an area with few man-made features.

Furthermore, the view of the study site as a 'natural' area was not shared by all. One visitor, notably a Geographical Information Systems (GIS) PhD student with a personal interest in ecological restoration, observed that the site was "*…not really a natural area, it's more a semi-natural area*" (5). Three experts commented on aspects of the site which revealed the interrelationship between human intervention and natural processes at the site. For the Forestry Manager, the concept of naturalness was related to natural regenerating woodland, as he explained, "*…if I'm walking about here and I can see advanced regeneration, you know, you see young seedlings coming up through, you'll see tufts of it. I mean Birch always regenerates anywhere there's enough light and there's been a bit of disturbance. But if you see signs of Scots Pine, like that stand there, that's naturally regenerated, most of it has, it's been planted, but I'll be managing the vegetation to get the regen coming through as well"* (Forestry Manager, 2009). In relation to 'semi-formal woodland' at Bow Brickhill Park, the ranger described some, "*…some really old Beech trees… you can tell just by looking at it, it's almost for... it was almost formal parkland. There are these big standards and cleared areas, and you just sort of , just stand there and look around and, ignore the new conifer bit, and think yes that was, that was* something, *that was something sort of semi-formal almost. Semi-formal woodland*" (Ranger, 2009). Regarding topography, it was noted by the County Ecologist that, "*if you go to Mermaid's Pond and look towards the band of conifer trees that are there, the land suddenly rises up; I*

don't think that's a natural landform, I think that's where they pushed the sand to when they were digging the fuller's earth quarry in earlier days" (County Ecologist, 2007). These statements indicate that, although some visitors did mention the plantation woodland (Section 6.2.1: land cover), there was a divergence between the views of 'naturalness' offered by people with no environmental training, and those educated in landscape sciences.

Comparison

Comparison of the study site to other places appeared to be important in the experience of the current environment. .A lady who used the site (with her partner) to play with remote control cars said they came here because "…*other places are a bit small and manmade. We like it here 'cause there's lots of space*" (8). One teenage dirt jumper mentioned that "… *the place at Chicksands, I prefer that 'cause there's more there" (3),* whilst another advised that *"…a skate park is the closest thing to this in an urban setting. Comparing riding tracks to riding a skate park is like comparing formula one to rally driving"* (2). One male green-laner with extensive experience of natural resources stated *"…if I couldn't come here I'd go somewhere else; it's not a big deal. It's not that vast an area- it doesn't compare with a National Park*" (5). This is illustrated further by comments from an ex-navy man who visited daily, and said *"… you don't see many trees when you're at sea*!"(22), and the orienteerer who considered the site to be "…*quite good in a part of the country that hasn't got any good places to run*" (24). These visitors placed their experience of the site in the broad context of visits to other sites, in contrast to the retired dog walking couple who stated they had visited this wood their whole lives and didn't go anywhere else, and ventured that "…*the wood stretches for miles. It's very big*" (20).

A perspective offered by the landowner situated the Woburn Estate (of which the study site is a part) with implicit reference to its location being close to areas of rapid urban expansion; "*I remember Chris Webster who used to run the safari park 18 years ago… he talked about Woburn and the estate being a green oasis. I thought it being dramatic language and I didn't really see what he was saying. I think it's more evident now, and if it is a green oasis, it is going to get pressure. But then I would prefer to keep it as a green oasis than an ever growing urban jungle"* (Landowner, 2010). This statement shows the importance of *context* for Aspley Woods and Heaths, since the relationship between this and the 'ever growing urban jungle' emphasises the ecological properties of the site, thus encouraging a view of the area as a 'green oasis'.

Different senses

Enjoyment from sensations such as jumping over ramps, whereby the "… *shape of the ramp makes it feel different*" (3) show that proprioceptor sensations were a valuable component of experience. The smells at the wood were suggested to be "…*important, a reminder of happy times. Even unpleasant smells can have a nice effect*" (24). Visitors enjoyed the sounds of the birds (3, 8a, 22) though others differentiated between birds making a horrid noise (e.g. crows) and a nice noise (24). Alternatively, some visitors derived enjoyment from the site being 'really quiet' (3, 8b), whilst the landowner observed that, "…*you literally don't hear roads in there… you're actually back to nature"* (Landowner, 2010).

Ambiance

Comments were made by visitors that they had a 'sense' of something, perpetuated through experiences influenced by sensory information or memories which were not always described. Examples of this were the sense of being in the open (7; 21) and the sense of ancientness (11). Two visitors commented that the terrain reminded them of North America or Canada (7, 12) since the site has "… *has a Canadian feel to it… I like the atmosphere*" (12). Here, 'atmosphere' is taken to mean ambiance rather than the gaseous mass.

6.3 Psycho-social experiences

The section details experiences which visitors to the study site underwent during their visit. These experiences have been categorised into the following experience subgroups: cognitive, creative, communicative, retrospective, intuitive and regenerative.

6.3.1 Cognitive experiences

Knowledge of geospatial site

Many aspects of site attendance presented opportunities for visitors to increase their knowledge, revealed through explicit references to learning processes, or implicit reference to an increased awareness of the environment or self. Some interviewees increased their knowledge of the weather, and its effect on the site. Three individuals who stated they attended the site in all-weather conditions, and all year round, offered insights which showed they had learnt from their experiences of these conditions. One biker advised that "…*when (it hasn't rained) the ground is dry, it's dusty and it gets everywhere*" (1), whilst another explained that "…*rain is fun but it*

wrecks the brakes" (4). One of the male car photographers advised that "…*snow looks good on pictures*" (7). These observations were born of experience, and thus indicated that some weather-related learning had taken place.

Learning had also taken place specifically for bikers regarding the soil type at the site. Acknowledgement that there were 'different soils' at the site (4) was expanded upon to varying degrees by different interviewees, as knowledge acquired outside the study site was applied to conditions within the site. For example, one of the teenage dirt-jumpers said "…*Sand is better it's softer*" (2), a comparative remark which shows the sand (and it's propensity for being dug and formed into ramps) was considered in contrast to prior knowledge of another substance. An adult male biker showed similar but more developed knowledge of the particular soil types and actions at the site, saying "…*where it's sandy, you can't build too well. If it's loam it shifts around too much. Here's a good mix, sand and peat I think*." (14). Knowledge of the soil type at the site was described most specifically by a third biker, who observed that "…*here there's a unique soil type; sand and iron oxide and clay. This soil is good for building*." (12). He later went on to say "…*soil type is important, and the drainage. Light sand gets washed away. This is basically here because it couldn't be used for agricultural purposes. It's a unique oasis*" (12). This telling comment shows the unification of different types of knowledge: soil type, hydrology and the relationship of these with social land use; and seems a deep insight considering the non-professional context of this biker's relationship to the study site.

Some visitors experienced an increase in spatial awareness relating to the site, through going different ways through the wood (17, 20), covering a big distance and becoming familiar with the area (4), or from riding around and exploring (14). Spatial knowledge of the site for some, was also combined with knowledge acquired elsewhere, such as the walker who had learned to forest navigate and who could tell North by the trees (22), the walkers who could map read and used this skill to 'walk all paths' (23), or the orienteer who had learned to map read and use a compass at age 11 (24). Other stimulating, 'factual' types of knowledge were gained by some visitors. The site was said to offer 'interesting walks' (10), and was 'not boring' (8). Geological and social knowledge was displayed by the interviewee who made the link between the ancient history of the site and current name "…*it used to be all sea, I don't know how long ago, but that's why it's called Sandy Lane*" (7). Historical knowledge was displayed by a few visitors (11, 19, 20, 22), such as by the comment "…*villagers used to take sand from here… it was an old sand quarry*" (12). Ecological knowledge was referred to in relation to watching and naming birds (22), wildlife (1), different habitat types (11, 24) 'semi-natural' habitats (5) and mixed terrain (4).

Other land-use knowledge was displayed by those who had witnessed forestry procedures and could apply this knowledge to the study site, such as "…*I know it goes on. I haven't seen it, but I've seen it in Wales. But it's just to thin the trees out isn't it? They only do a section at a time don't they?*" (14). interestingly this man voiced his knowledge as a question, showing a propensity for increasing this knowledge given further opportunities to witness forestry operations. Other visitors who had seen previous felling activities made comments such as "…*I now this will be chopped up. 2 years later though it has grown back*" (4); and "…*I realise it needs all types of woodland to work*" (11) showing an awareness of the growing cycle, and needs of estate owners in relation to commercial forestry.

Self-knowledge

Statements made by some visitors indicated that visiting the study site increased their self-awareness. Bikers in particular made comments which revealed an internal alertness directly related to biking in the site, e.g. regarding the physical effects of the activity on the body (1), the body's ability to heal itself after a site-based injury (14), the bodily awareness acquired from increased technical ability (12) or the effect of the rain making you feel 'miserable' (12). Active learning (requiring self-awareness) was evident with the teenage boys who explained they learnt moves on the television, then attempted to copy these moves in the wood, aiming to "…*do tricks and try and get good air*" (3). A group of men told how they deliberately ride through puddles trying to splash each other since this "…*makes your outlook on life positive. It's a balance to stressful jobs*" (4). A further adult biking male was able to explain in detail the thought processes which he experienced prior to doing a jump, saying "*You get like 2 voices in your head, a voice of doubt, and a voice saying 'do it, do it! Oh, and a voice of reason."* (Q so that's three then?) *"Ah voices in my head!"* (Q No, it's normal isn't it?) *"Well, it's like the way you analyse things. You have techniques."* (1). This man then went on to explain how he used a visualisation technique to improve his performance, saying "*I imagine things, I see myself doing the jumps. I can focus and get it done when I'm not even there*" (1). These insights into the psychological processes which this person is aware of, and that he is purposefully engaging in (for a goal-orientated outcome) are worthy of further exploration, to establish if this phenomena is widespread.

Knowing and deliberately seeking the effect of the site-based activity was also evidenced by visitors from other activity groups. One gentleman told how he " …*can think a lot when I come here in the early morning. It helped when I was learning Italian. I could put things in order in my head* (20). Other walkers told how coming to the site " ...*changes your attitude*" (9), how it was "…*better than being stuck inside*" (7), and that "…*it's important to my sense of wellbeing*" (10, carer). In addition, the

lady with special needs (who had limited capacity for speech) said clearly, audibly and spontaneously "*I'm in a good mood today*" (10). These comments indicate that people were generally aware of their state of mind before entering the site, and were also then aware of the changes to their state during and after the visit.

Knowledge through interaction

Statements made by visitors indicate that they increased their knowledge of the land through interacting with it. Knowledge of the effect of the weather on land surfaces ranged from subtle acknowledgements such as the benefit of using the site in the rain, since the sandy soil enabled walkers to keep their feet dry (20), to observations of the increased risk associated with rain on land surfaces; "*It's probably not the best time to come, after it's been raining. It's slippery*" (said following a crash) (1). Complex observations were made regarding the relationship between the land and experience, such as "…*you get to make 'em (ramps) how you want 'em*…" (has short discussion with friend about ramps- altering the 'line' to go faster), "…*the shape of the ramp makes it feel different*…" (shows the shape of the contour of the ramps using hands) (3). These teenagers had in depth knowledge of how to form the earth into ramps using their hands and basic tools (Plate 6:12), the way to ride these ramps with their bikes, and how to change the form of the ramp to achieve a different feeling when riding over it. This same process was termed by another biker "…*manipulating the dirt*" (12).

Plate 6:12: Dirt jump being repaired, Old Wavendon Heath

This form of biking and building jumps showed a rather advanced knowledge of small scale 'dirt manipulation', revealed by another biker by the explanation "*…to make courses you rake the land out, then create 'berms' out of the soil. You form the land into a shape, then make the jumps using logs. Then you form a route from the top (of the hill) to the bottom… you try and get down the hill as fast as possible.* (14). The environmental impacts of ramp building were also highlighted, in reference to an agreement the landowning estate had with bikers, to bring sand from other parts of the site (for ramps) "*…to stop the guys digging. Digging was causing environmental damage*" (12).

Some knowledge was gained by visitors of a relationship between the land surface and technology. A biker observed that "*…bmxs aren't right for riding these side bits (i.e. steep hills). You need more grip, more brake power, and the wheels are too small. You need big tyres with knobbly treads*" (12). This need for specialist equipment due to the terrain was further shown by visitors with 4x4 cars. One male had purposefully driven down Sandy Lane (an unmade road) to use the bumps and rough surface to test a new axle he had fitted to his 4x4 (5). The two male photographers from the car dealership also admitted to driving 4x4s down Sandy Lane to "*…get a feel for the car*" (7). An elderly walking couple however, attributed the rough surface of this road to the effect of cars, saying "*Sandy lane used to be flat. It got ruined with people driving down it too fast*" (20). All these comments show visitors thinking about connection between human activity and the land.

Shaping of knowledge through rules

Individual experiences were tempered by rules imposed by the site such as byelaws, national laws, informal social norms, rules imposed by the natural environment, and the influence of authority figures. Some visitors felt "*…you have to abide by the rules*" (18), and disapproved of others breaking the rules, such as "*… horses aren't supposed to canter*" (17). Informal rules such as "*… we thought it looked like a good place to walk, but didn't realise it was for bikes"* (13); and "*…we don't go there (to the ramps), they're for kids. For people without mortgages*"(4) show that visitors imposed rules upon themselves which limited the parts of the site interacted with. This extended to activities, such as "*…people don't approve of motor cross; a lot of people who used to do motor cross do this (downhilling) now*" (1). In this particular instance, social approval intermixed with formal law, since it was advised that "*…these (trail bikes) are legit… police crush the (motor) bikes nowadays if they catch you riding them places you shouldn't*" (1).

Reference to legislation and behaviour rules for the site transpired in relational to the more dangerous biking activities. The prohibition and removal of wooden structures for biking in relation to health and safety legislation (1, 12). Other than this, no references were made to the byelaws described in Section 8.2.2. A number of behaviour rules were self-imposed by visitors through experience of the natural environment itself. A choice to walk to the site rather than bike (10), or not walk at all (21) was made in relation to the perceived effects of rainy weather. A choice to evade running through 'marshy areas' and 'bracken' was made "… *to avoid ticks*" (24). Avoidance of the site was indicated by one dog owner, in relation to his unneutered dog being 'in season', saying this time was "*too stressful*" (22). Self-imposed limits were also made in relation to physical ability, as shown by the comment "…*I do some little jumps, but I'm scared of the bigger ones. I don't bend, I break*" (15).

Despite the access agreement, there appeared to be hesitancy over what aspects of experience were allowed by authority figures. Although interviewees had the aims of the study aims outlined at the beginning of interviews, two separate visitor pairs felt the need to ask "*Are they going to cut it all down? Is that why you're asking this*?" (14); and "*You're not from the estate are you? Are they trying to close it?*" (15). In both cases this was said slightly apprehensively, and showed that the seeking of information about enjoyment of the site, the trees, and access prompted fears over whether it would continue, since people were aware of the estate's control of the area. The landowning estate was also referred to in regards to the limiting of jumps and built structures for biking (1, 12). It was advised that "*most private property owners don't appreciate riding on their land, because they don't want to get sued… Land owners are resistant (to things being built on their land) for Health and Safety reasons*" (1). This shows that a larger 'controlling structure' beyond the landowner exists, i.e. legislation, such as health and safety, or public rights of way laws "…*to keep the paths open… it's important you know"* (23).

A further visitor attempted to make a licence payment to the author during an interview with another person. After explaining the research purposes of my presence, he said "*Oh, I saw you here looking official and thought you were from the Trust*" (6). The presence of an (rare) 'official' looking person in the wood asking questions evidently acted as a reminder that the site was privately owned, and certain types of access required a permit.. Many bikers admitted to not purchasing mountain biking permits regularly, explained by one biker in the following statement "…*we pay when the warden is around… about 50% of the time. It's not really worth joining the club. Only if he was here every time. There's no point if he's not here half the time*" (2). This purchase of a permit on an 'adhoc' basis, instigated by the presence of a

ranger seemed almost commonplace (1, 2, 3, 6), with only one group of three men declaring the purchase of an annual permit to "*get covered by the insurance*" (4).

The sense of control was generally accepted by visitors however, and presented in a beneficial light. Comments such as "*The area is well policed*" (7), "*The rangers are good*" (14), and "*…here they don't mind if you maintain them*" (1) (referring to dirt jumps) show that these visitors generally saw the control of the site in an encouraging manner. The presence of 'security' was also alluded to; people who "*…drive through… in a ford pickup or a land rover*" (14) or security from the abbey who have the power to "*eject*" (22). One description of how the presence of quad biking adults at night was dealt with shows the pathway for control involving "*…a lady whose house backs onto woods phoned the police. The police called the ranger, who called the Abbey. The abbey sent security out to eject them*" (22). All regulating parties connected to the wood are captured by this statement, which notably includes an individual with a property adjacent to the site. The responsibility felt by those living next to the site was shown by a further 'ownership' statement , which revealed that living on the edge of the wood for over 25 years made this couple feel "*…it's like our back yard*" (17).

6.3.2 Retrospective experiences

History of the site

Some individuals showed as interest in the history of the study site. A lone male walker, who was walking round Danesborough Hillfort because he "*…likes the iron age fort*" (11) offered the view that "*…the area is ancient. I like the sense that it is ancient. I like history*". This same gentlemen later also advised that it "*...would be difficult to replicate (the site). It'd be difficult to copy, because this wood has been here a long time. It's permanent. It has a sense of permanence about it*." This gentleman evidently felt a deep resonance with the area, particularly an enduring sense of 'depth' related to the ages and longevity of the woodland site, which resulted in a pleasurable sensation.

Insights were offered by one particular visitor which showed this individual had an extensive knowledge of the history of the site in relation to his preferred activity (trail riding). He offered a chronology of the early development of the site, before commenting "*This is basically here because it couldn't be used for agricultural purposes. It's a unique oasis. Villagers used to take sand from here. It was an old sand quarry, then it was left alone*" (12). This shows that the man recognised the socio-historic influence on the development of the site, in relation to the current recreational uses, and his own individual activity and enjoyment.

A further gentleman, one who lives in a cottage on the Southern edge of the study site reminisced on the changes to Wavendon Heath Ponds since he had been living there, and interspersed his memories with historical knowledge. He offered the view that "*…it's marsh now, rather than pond. It's not easily seen. I remember when it used to be full. There's an overflow in between each pond, and footpaths around the edge. It's for drainage. There used to be a military base up here. The troops used to skate on the ponds in winter*" (19). The man did not specify whether he derived a sense of enjoyment from this knowledge; however the event of his combining recent personal memories, old memories and historical learned knowledge indicates an identification with past events.

This was a similar case with one elderly gentleman- the self-professed 'country bumpkin', who 'remembered the area before they built Milton Keynes'; recollecting that *"...it used to be quiet up here before they built MK*" (20). This awareness of changes to the site over time is potentially a source of identification available to a limited number of people, who have had regular contact over a period of more than 40 years.

Reminiscing on life

One individual presents his accounts of the wood in relation to memories from his life outside the study site. This elderly gentleman explained that he'd *"...led a hectic life. I ran away and joined the navy when I was 15. Then I was a dog handler in the aviation police. Now it's time to pull the plug. I'm winding down from life*" (22). This man was purposefully using his experience obtained daily in the site to 'wind down from life', and at various points in the conversation, gave accounts of things that had happened in the wood which had a military theme. For example, he talked of a "*Crazy pilot*!", and recounted how "*One (aeroplane) flew over here the other day, it was a Chinook. It was flying very low and it scared the dog- so low it cracked the branches and pine cones came falling down. I thought the thing was crashing. They're military planes- they fly over this wood regularly*". He also spoke of the wood as a military training ground in World War I (Plate 6:13), and for the OSS Secret Service in World War II, and of an nearby convalescent home with an assault course in the back garden.

Plate 6:13: World War I trench practice at Aspley Woods and Heaths (Woburn Sands District Society collection)

In another story, the man described how he liked watching and hearing birds, and could name them as he'd "*...got to know sounds of birds throughout whole life... would spot them, them look them up in a book. I have a love of nature*" and ended with the statement *" I was at sea for 13 years- you don't see many trees when you're at sea!*"(22). These stories indicate that this individual may have been experiencing and 'reading' the wood as reflection of own life. Other childhood memories were prompted by the presence of children running through the wood, prompting the comment "*I like seeing the kids. It reminds me of when I was young. When I could run life and take risks*" (22). Thus the site for this gentleman, is a place to reflect and reminisce, and provides an environment with symbolically significant features to promote the resurfacing of memories.

Memories of other places

One individual described memories which had been provoked by being in the site, regarding 'North Shore' riding, which originated in Vancouver, Canada, and was "...*designed in steep, temperate rain forests*". This individual mused that "*The trees here are cool. They're unusually tall. A bit like Canada. It's actually a really similar landscape. It has a Canadian feel to it, like North Shore. It's safe. Over there it's Cedars though. But the tallness and the ferns is similar. I like the atmosphere*" (12). This indicates that being in the study-site brought up memories of another place due to the similarities in landscape features and 'atmosphere' or 'feel'. A fleeting comment was made along similar lines by another visitor, who commented that "*Smell is important; it's a reminder of happy times*" (24). One further visitor provided an account linked to the memory of another place, whereby his pet, a "... *dog I had before, it died. It hurt to come here then because it reminded me of the dog. I started going to Stockgrove every day then, as it didn't remind me of the dog. When I got a new dog, I started coming back to Aspley again*" (22).

Self-reflection

Site-based experiences also appeared to be used actively by visitors to reflect upon, and construct aspects of their identity. One gentleman, who showed a strong awareness of the fitness elements of his activity, when asked the question 'what wears the bike out', remarked "*heaviness*!" and simultaneously slapped his stomach (1). This seemingly small gesture, in combination with prior comments about a 'fitness programme' showed that the man had identified himself as overweight, and was taking action to change this; using the bike and site to burn calories. The bike becoming worn out symbolised to this man that he was too heavy, whereas the freedom of the site gave him opportunities to engage in a weight loss programme to change this.

Another male biker, in relation to his activity, remarked that "*I say to my wife, if you're not falling off, you're not pushing the boundaries", before adding "we're just adrenalin junkies, we need to get our fix*" (1). These two sentences reveal a lot about how the man uses his experiences at the site to construct his self-identity. He identifies himself as an 'adrenalin junkie', somebody who has a strong need for the 'high' experienced through the site-based activity. He is a person who 'pushes the boundaries' of his experience, and who is willing to take risks in pursuit of this. Additionally, we are aware that he discusses his experiences with his wife, thus using this close relationship to further continue the self-identification process when away from the site.

A third biker identified himself through his activity and belonging to a group, as shown by the statement "*I don't do the sand jumps, I'm too old for them. You have to have long hair and smell to do them. We're down hillers*" (14). The proclamation 'we're downhillers' was said with a sense of pride, that this was evidently a better identity to hold than being an unkempt dirt jumper. The gentlemen positioned himself as someone who was too old for certain activities. The switch from talking about himself as an individual, to discussing another activity group, before locating himself firmly as a member of the group 'downhillers' showed there to be different ways of achieving feedback for use in the construction of self-identity.

An elderly couple who were daily visitors, professed to coming to the site 'their whole lives', with the male of the couple stating "*We're village people, country bumpkins*!" (20). This identification with the study site formed part of a network of local ties, including that the couple 'know lots of people around here', and that their "*…family has been here for generations- since the 1700's*". In this case the bond with the site, and the shared experience of coming as a couple, formed a strong component of the identity of being a 'village person'; shown by the man's declaration that "*…nowhere else has woods like this, there's no other woods I prefer. We stick to this wood...We haven't ever lived anywhere else. We wouldn't want to*" (20).

A further daily visitor, this one a lone male dog walker, indicated that his visit to the site and his position as a 'dog lover' were both important elements in his sense of identity. His advice, that "*You can tell a dog owner from a dog lover; sleet and snow, who's out? The dog lover*" (22) combined with his self-reported daily attendance, and abundant remarks which revealed his concern for the welfare of his dog showed that attending the site and being a dog lover were critical components in his daily ritual which gave him a sense of wellbeing. This was further reinforced by the advice that "*I get withdrawal symptoms if I don't come*" (22).

Finally, the gentleman who was partaking in a lone orienteering exercise made the most conclusive statement which related his site-based activity to his sense of self. When asked what it was about his activity that he enjoyed, this man declared "*I'm a runner. I can't say what it is that I like. It's just me. It's part of my identity*" (24).

6.3.3 Intuitive experiences

Non-rational experiences

A reference was made to the experience of getting "*…in touch with nature*" (22). The process by which this gentleman got 'in touch' with nature was not described in depth, but was related to him sitting on a log in a relaxed state, surrounded by the trees and

birds, in relative peace and quiet, and was described in relation to his *need* for this experience. Biking was described by one individual as "…*a form of escapism I suppose*", with being in the zone termed a 'strange' part of this (1). An example of this state was offered by one individual; "…*sometimes I get so 'in the zone', when I go home the wife asks if I've been smoking aromatic cigarettes. It's like being on a natural high, the psychological effect is noticeable to other people. You get these wide eyes. It's a completely natural high*" (1). This 'natural high' was experienced in combination with a cessation of rational thought, indicated through the statement "…*when you do it (ride), you don't think, you just concentrate; psychologically you have to*". This thus implies a transcending of normal thought processes to a higher 'zone' of mental activity.

A further individual described the experience of freeriding as a 'flow activity (see Section 9). This gentleman stated that "*I like the atmosphere. Riding you're at one with yourself. It's a 'flow activity'. You stop thinking, you're not worrying about bills or anything. It's all very Zen"* (12). This very insightful sentence gives us a lot of information about the components of this experience. Firstly we may understand that the 'atmosphere' is in some way linked to this experience. This concept has an ethereal quality, implying there is a special environmental 'tone' or aesthetic quality to the site, and which presumably cannot be attributed to a single source or sensory organ. We are told that when riding (doing this activity in this atmosphere), people feel 'at one with themselves'. We are then provided with an academic concept which 'labels' this experience, namely 'flow activity' (Csikszentmihalyi, 2000), and that this state denotes a cessation of thinking and rumination, much like being 'in the zone' described earlier. Lastly, a religious connection is made, to a form of Buddhism named Zen, thus connecting the activity with meditative mind states associated with spiritual development.

A third individual, the man described earlier in relation to 'getting in touch with nature', also explained the purpose and context of his visit to the study site in transcendent language. This gentleman explained that he had "…*led a hectic life*" (75) and was now "… *winding down from life*", and that his woodland visit helped him to "*pull the plug*" (22: 79-80). This analogy, when read in conjunction with other statement on peace and quiet, indicates a detachment from social life and mental stimulation, also notably similar to the tranquil intentions behind many meditative practices. Interestingly, none of those interviewed confirmed any affiliation to mainstream religions when asked, however, in hindsight, more time could have been spent attending to religious or spiritual beliefs during interviews. The only positive responses came from the orienteerer, who admitted to being an 'agnostic' (24), and one biking gentleman who declared that "…*if I die I want to be spread here*" (4).

Mystery

A sense of mystery was experienced by some visitors to the site. One of the young males employed to photograph a 4x4 car, talked of Wiccans apparently using the area. This group were purported to like the area "*…because it is special, it used to be all sea*" (7). The sense of mystery in this case is created by the reference to a nonmainstream religion, associated with magic, and the purportedly magical status of land which was previously sea.

A further mystery was experienced by an old married couple who have been long-term frequenters of the study site. The man from this couple relayed how they "*…saw a leopard up here once, a couple of years ago. I still think it's up here now. We don't talk about it, 'cause people wouldn't believe you. The wood stretches for miles. It's big, there could be anything in here*" (20). There are various components to this mystery, not least where such an animal could have come from, and how it was managing to survive in the wood. Supporting this was the feeling that the wood harboured a wild exotic animal, and that this was made possible by the wood being 'so big' that *anything* could be in here. Use of the word anything implies that there could be more mysteries within the wood in addition to the leopard.

A similar sense of mystery was evoked through the advice of one biker, who advised "*…it's not recommended to ride alone. If you come off, it doesn't make a sound… the trees don't call out. You could be lying in the ferns for hours and no-one would know you were there*" (1: 24-27). This rather spooky scenario, one which is soundless, is one which only the trees would know about, and 'they don't call out'. The thought of a person lying hidden in tall ferns (and no-one knowing they were there) has a mysterious yet macabre quality to it, accompanied by the warning to 'never ride alone' (illustrated by Plate 6:14).

Plate 6:14: Crossing branches in dense enclosed tree cover, Wavendon Wood

A further sense of mystery was invoked by the old man who came regularly to the wood to reflect upon his younger years (22). This gentleman talked of the 'interesting history' of the wood, and pondered upon the wood (in the past) being "…*a military training ground for the OSS Secret Service, in World War II…. There were no records of where the bunkers were, only the lord would know*" (22). The same transcript also divulged the meeting of a 'man with a metal detector' some years previous, who had found a 'bishop's ring', and an ivory and silver dagger. These artefacts, reportedly assessed by Luton Museum, add to the sense of mystery as represented ancient 'buried treasure', and more evidence of valuable items concealed in the earth under the wood.

Changed states

A few interviewees described their experience or perception of the site or activity engaged in at the site in language related to changes in state. These changes were likened to changes associated with the effects of drugs (both legal and illegal). Two

interviewees gave statements which directly compared their attendance of the site to an addiction. One biker stated that "*We're just adrenalin junkies, we need to get our fix. It's like on a par with smokers*" (1, part 1: 80-81). For these males, engagement in the activity initiated the production of hormones (adrenalin) which was experienced as a type of addiction, shown by use self-descriptor 'junkie', the requiring of a 'fix', and comparison to smoking.

A further male dog walker also declared that "*I get withdrawal symptoms if I don't come*" (22: 74). The notion of 'withdrawal symptoms' is also linked to drug use, and indicates the uncomfortable physical or mental states that are experienced when an addicted person is deprived of their regular substance. In the case of this gentleman, the substance he considered himself addicted to was the daily experience of relaxing in the wood, and the associated psychological changes which he maintained stayed with him throughout the rest of the day. An indirect link was made to substance abuse by one father who had brought his teenage son to bike in the wood. This man presented ramp building and biking as a *substitute* for drug or alcohol use; "*It gives 'em something to do dunnit. It's a hobby. By building these at least they're not smoking weed, or getting pissed in the park*" (15). Here the reference is not a personal experience, but is an adult's insight into the perceived pass times of young people, and the parental preference for outdoor, active, and sober activities, over and above outdoor experiences linked to underage alcohol/ drug usage.

Other comments related directly to alcohol use. One biker categorised riding at the site as 'positive riding'. This he explained, meant people 'ate well', and also meant that "*You won't find many riders drink alcohol, but a lot drink energy drinks*" (12). Thus for this man, 'positive riding' was associated with not drinking alcohol, and nourishing the body with sufficient energy for the activity. Another biker explained how engaging in physical activity at the site gave him permission to indulge in alcohol, as he advised "…*I go to the pub sometimes after coming here. I don't feel so guilty then, as have earned it.*" He also went on to say "*I like being healthy, but I'm not ultrafit. Some people are maniac for fitness, you know, 'my body is a temple' types*" (6). Here the man is situating himself in relation to other people who are perceived as 'unbalanced', and implies that he himself is balanced, since he had engaged in physical activity which 'earned' him the right to engage in the less healthy activity of drinking alcohol.

6.3.4 Creative experiences

Freedom and Creativity

A number of individuals described circumstances which indicated they experienced a sense of freedom and creativity from their visit to the site. The family of walkers stated that they had no map of the area, but were "…*going to go where we like* (13). The young males engaged in taking photographs as part of their job, expressed their option to choose the location for the photographs, the feeling of 'freedom' from work being in the wood gave them, and how they enjoyed being able to "…*hang about a bit*" and not rush. (7)

The sense of creativity appeared to be greatest for those bikers who were also involved in building ramps and dirt jumps. 'Building' and 'designing' were described as being "…*a big part of it*" (14). One teenage boy offered the view that "…*it's quite fun digging. You get to make 'em (the ramps) how you want 'em*" (2b; 31-32). This explanation was put in context by his friend, who explained that even though they preferred the organisation of Chicksands bike park, what made *this* site special was the ability to do 'self-maintenance', i.e. that they "…*can change the ramps. Adapt them. You've got control over it*." (2a). 'Self-maintenance' showed the value of freedom related to changing the shape of the ramps, and being able to alter the 'line' (path) of the ramp to enable the biker to have a different jumping experience. This important point was supported by a further biker's comment, which also discussed the difference between the fixed ramps of Rowney Warren bike park and the study site, stating "…*here they don't mind if you maintain them. You have partial control. People (who come here) build and maintain them. Some kids just come here and build. There's no need for facilities. In the summer, you just give the kids some shovels and a space in nature to build shit. They have endless hours of fun*" (1).

Spontaneity and exploration

The experience of spontaneity and exploration was referred to both explicitly and implicitly by visitors to the study site. The family of walkers had arrived at the site based purely on the father's spontaneous decision to explore, shown by his statement "…*I drove past and saw the entrance. I saw the other cars and thought there's something here. Saw the beginning of a trail, and thought it looked like a good place to walk*" (13). This seems an interesting point, that a view of the beginning of a trail, and the presence of other cars signalled to this man that there was 'something here', thus initiating a desire to explore, fulfilled through the subsequent visit of the man's entire core family (illustrated by Plate 6:15).

Plate 6:15: A path into the unknown, Aspley Woods

A number of people described spontaneous decision making in regard to their attending the site. This was shown by comments such as coming was a 'spur of the moment' decision (5, 15); or based on a 'snap decision' (7). The greenlaning male offered that he "…*was going to the shop in Woburn Sands, had 10 minutes to spare, and thought I'd drive down here*". The orienteerer simply comes when he is 'in the area' (24). The men biking from work in their lunchtime come at least twice per week based on a spontaneous decision (4); whilst the teenage brothers "…*came because we had nothing else to do. I said to my brother let's go to Woburn Woods…do some dirt jumping*" (3). The ease with which these people were able to access the site (and subsequent experiences) was potentially made possible by the site's open access (multiple entry points, no booking required, little governance regarding membership fees, and no entry charges), and the individuals' proximity to the site which enabled easy access.

Further spontaneous decision making was evident in comments relating to behaviour when already in the site. One walker described how he "…*drift, explore, depending on what I feel like at the moment"* (11). Exploration was shown to be connected to the presence of different routes through the wood. The carer accompanying the SEN lady specified that "…I like it here as there's lots of space and different routes" (8). A married couple, walking their dogs explained how they take "…*different routes each time. We just amble around. Sometimes we change it. We like changing it"* (17).

People mentioned how they actively sought a different way to go through the wood in order to explore the paths (20, 4) and find bike 'courses' (14). The extensive nature of the unmarked 'little path' (17) network was highlighted by the couple attempting to walk and record all paths for the Ramblers Association. This couple were marking each path on a map when they walked it but said that the exercise was "…*difficult, as so many paths criss-cross*", and that some paths were not even marked on the map at all (23).

Safety and fear

The issues of safety and fear in the semi-natural study site presented in different forms. Bikers had a markedly different perception of safety and fear, and are thus detailed in Section 6.3.6 entitled Risk and Injury. For non-biking visitors, some felt 'totally safe' (11), felt the area was safe (9), or felt safe to talk to people they didn't know (7). However, potential sources of fear did exist, including areas of the wood known to house criminal/ antisocial activity; a fear of getting hit by something travelling at speed, a fear of dangerous animals and unpleasant insects, and fear of other people and/or their actions. As already mentioned, some visitors avoided certain areas of the site completely, and/or at certain times. The area named Sandy Lane had a particularly bad reputation and instigated fear relating to a loss of property. For example "…*they burn out cars here… lots of joy-riders. They burn cars here because it is quiet. The police are cracking down though. It's mainly at the weekend."* (7). A further visitor mentioned 'thefts from cars' on this stretch of road, and also Longslade Lane car park, stating "*I worry about my car being broken into… I used to park in Longslade Road car park, but it's fraught with dangers. My mate had his window broken and radio pinched*" (22). This same individual mentions another road which is (for all intents and purposes) part of the site, Church Road, and says things get 'nicked from cars' there too.

A further unnamed area, known as the 'dogging area' was also mentioned by two visitors (4, 7). This site caused one group of men considerable distress, as shown by an account of accidently entering the area: "…*we stumbled in the dogging area once, it's gross. We always avoid that area. We felt like people were watching us. It's right on the Beds Bucks border, in a densely planted area. Now we go near that area, but not up that particular track. We were grossed out*" (4). In this case, unpleasant sensations were experienced through a feeling of being under surveillance, and through the imagined activities which had occurred there at other times and which caused the men to feel disgust. Other fears alluded to by interviewees included the fear of getting run over by bikes (10); of the dog getting run over by bikes (20); a fear of cantering horses (17); or danger felt whilst backing out of an (unofficial) car park

onto a main road (1). All these worries relate to a concern about being hit by something travelling at speed and (presumably) sustaining physical injury. Some visitors expressed concerns over dangerous 'wild beasts' which could also potentially inflict physical harm, such as also dangerous dogs (24), "*Pit bulls and other American dogs see being walked sometimes*" (20); and the 'inconvenience' of ticks (22, 24).

Occasionally, other visitors made some interviewees feel unsafe (9), specifically motor bikers (10), and strangers generally: "…you've got to know who's about, who's around you" (20). There was striking gender differences connected to this phenomena. Within one couple, whilst the male said he would be happy to come alone, the woman when asked if she felt safe here, replied "*… no- not on my own. I wouldn't come on my own. Or without the dogs. I stick to the main paths." (Q. What's the fear?) "Fear of being attacked I suppose. Strangers.*" (17). The concern for women's safety was explicitly expressed by other males, e.g. the motor bikers were "*…intimidating the ladies*" (22); or "*Sandy Lane is a bit dodgy but it's no problem to us. It wouldn't be safe for a girl on her own though*" (4). Additionally, concern for women and more vulnerable persons was expressed implicitly through the statement "*I'm a big strong man. I can run away*" (24). It should also be reiterated that during the course of interviewing no solo females were encountered in the study site; however, solo females accompanied by dogs were observed in the site following interviewing.

6.3.5 Communicative experiences

Talking and greeting

Interviewees frequently described talking to people during their visit. People engaged in different activity types made comments which suggested a willingness to converse with familiar people. Statements such as *"…we see people we know when we get here. It's sociable*" (1); "*I speak to people I see regularly*" (22); and "*…we say hello to the same people every day, other dog walkers*" (9) show that bonds are created based on the familiarity of seeing each other in the same setting on a regular basis. This was limited in some instances by perceptions of others. For example, one lady (from a married couple walking their dogs) said "*…sometimes we meet people here that we know, and we walk together… We have conversations with 'ok' people. We do like (meeting) new people, but we have to know their dogs*" (1). The extent of socialisation could also be limited by perception, as shown by the comment "*…we say hello to other bikers, but we don't ride with them as we're not sure of their ability*" (4).

Pleasant social experiences were also had from other less familiar communicative relationships, such as with rangers "*…the rangers are good* (14); people with distinctive

characters (1); and the landowning family "…*sometimes you see the Duchess here, driving around. She comes in through the gate. She's really sweet, she stops and speaks sometimes*" (22). Some people socialised with unfamiliar people, e.g. "…*it's a friendly atmosphere. We talk to people we don't know. Just had chat with an old boy about his car… I tried to sell him a car*!" (7). For two male teenage dirtjumpers, appreciation of the social aspects of the site were shown by the dialogue (regarding what makes the place good) "…*you don't get twats here*" (2a) "*hey, don't swear!"* (2b) "*alright, you don't get idiots here*" (2a). This could presumably be a significant factor for youths wishing to avoid trouble sometimes associated with being on 'the street', and urban skate parks with a diverse user base.

Non-verbal communication also occurred. For bikers, certain styles of riding were more suitable for doing with your friends and family, as promoted bonding experiences (14); such as "…*free-riding is non-competitive. Downhill is against the clock. This is more what you do with your friends*" (12). Likewise, digging and building ramps appeared to be an opportunity for teamwork and communication between group members, as shown by the statement from a group of five males (including 2 teenagers) "…*we all get involved in building. Last week we came without the bikes. We just brought some shovels and rakes, and we built for the whole day*" (14) (Plate 6:16).

Plate 6:16: Group of teenage dirt jumpers, Old Wavendon Heath

The notion of 'respect' was brought up in relation to interactions between different user groups, e i.e. "…*they're all a good bunch of people here. Everyone respects what others are doing*" (14). A number of instances of 'working together' were cited, particular for bikers. This included evidence of a relationship between the estate and bikers "…*the sand (for the dirt jumps) was imported from the quarry over the road. Estate lorries brought it. They had an agreement with the bikers, to encourage them to stop diggings*" (12), and between rangers and bikers, e.g. "…*they're pretty clued up- the rangers anyway. We're working with them. For the trail building and that. It's well tolerated*" (12). One biker, and one dog walker both showed a willingness to temper their behaviour on certain days, e.g. (from a biker) "…*you have to be aware of other people, courteous to the other users. Like you get lots of runners on a Sunday*" (4), and from the dog walker *"… on weekends it gets busy. It doesn't spoil it as such. But you have to be courteous to other users*" (22).

Responsibility

Some visitors spoke of ways in which they behaved in the site, which had some greater social or civic significance. Some people acted in ways which benefited other individuals and/or groups. In regards to biking, it was accepted that the building of ramps was for others as well as one's self (14) and that the use of trail bikes (as an alternative to motocross) was "…*more in harmony with others users*" (1). The fulfilment of responsibility to dependents was cited as a good use of the site, e.g. to bring kids away from computers (22), to be a good parent (15), and to give a disabled lady support for therapeutic reasons (8). This also extended to being a responsible dog owner, since attending the site was seen to be "…*socialising for the dogs*" (17). Some dog walkers explained this aspect of their visit in detail, explaining "*I've got a dog. It's a responsibility*" (22). The site was observed to be "…*better than the park. The dogs can roam; go off the lead. They can socialise. It's better for the dogs… It has to be the woods so the dogs have more freedom. The dogs can charge off into the undergrowth, then they go home exhausted*" (9). For these owners, this was linked to the type of dog owned, e.g. a Dalmatian (9) and Collie (22) that needed the extra exercise provided by the woodland walk.

Accessing the site also provided opportunities to engage in larger scale altruistic civic duties. One man mentioned voluntary work he had undertaken for the Greensand Trust environmental charity (4), whilst another posited that sites like provided places to ride 'legit' trail bikes without upsetting others (1). The actions of the couple walking the paths for the Rambler's Association 'to keep the paths open' (23) showed an awareness of legislation regarding Public Rights of Way, and a willingness to give up their free time to do something to benefit others. Interviewees also took personal

responsibility for the impact of their actions on the site, such as the ceasing of digging to prevent damage to tree roots (12), the use of trail bikes rather than motorised vehicles to avoid erosion (1), litter picking (22) and the avoidance of habitat damage- "*I don't go tramping off the paths. It isn't the done thing. It disturbs the wildlife and fauna*." (22), related to general behaviour

Language and the biking subculture

Certain language was specific to site-based cyclists; an activity-group which arguably formed a subcultural group. Examples of terms used included "…*don't go 'hucking' off, this means don't go flat out riding*" (1); this showing the importance of to retain control whilst biking. The term creating "…'*berms' out of the soil*" (14) was used to describe the process of making corners and courses for downhilling. The saying "…*get dirt under your fingernails*" (12) was used in relation to ramp building, whilst the advice to stay "…*rubber side down*" (1) referred to trying to ride safely and not fall off the bike. A group of free-riders who regularly met had "…*a code for different places, based on stuff we like, or stuff that happened in a certain place*" (4), such as calling the main bridleways 'motorways'.

A behavioural code also indicated group solidarity amongst this wood-based biking subculture. Comments such as "…*there are a lot of characters riding bikes around these woods*" (1), the sharing of knowledge of site and jumps (16), "…meeting people you know" (17), and putting in jumps for everyone to ride "…*other people do it as well*" (14) indicate social connections shared with others in the same activity group. Group norms for bikers included the need to be "…*ride in a group, be padded up*" (1).

Conflict

A number of interviewees cited examples of conflicts experienced within the study site environment, such as between user groups, or due to the behaviour of certain individuals. One anecdote told the story of an "…*old grumpy git on a horse*", who's 'always rude' (9). The interviewee recalled how "…*once we threw a stick for the dogs… it went close to his horse and he got angry. Started shouted and being abusive. We avoid him now, we don't make eye contact. He's looking for trouble. He's a little bloke on a big horse. It wasn't a big deal- that day it was a big deal, but now we ignore him*." (9). Here although the initiation of the conflict is given as the stick being thrown close to the man's horse, the source of the dispute is attributed to the grumpiness of the other party, who was 'looking for trouble', and who had a big horse as a substitute for being a 'little man'. The interviewee distances himself from the conflict by saying

it's now not a big deal, but reveals that the underlying discomfort remains as they continue to ignore the 'old grumpy git' when they see him.

Further disapproval was directed at cyclists. A dog walking male recalled how he "…*got nearly run over by a cyclist*." (20). This was made worse in this person's view, as the cyclist had 2 dogs with him, which represented a hazard since these could have tripped the cyclist. This individual went on to declare "…*they should never have allowed it*" (Q. What?) "…*bikes. They're too lazy to walk or run*" (Q. don't you think peddling keeps you fit?) "*No. They should run*" (20). This individual did not perceive there to be any benefits to be had from biking that are not gained from walking or running, and shows a lack of understanding for the experience of this activity. The orienteer volunteered the position that "…*I don't get on too well with conservationists*" (24). This circumstance was clarified through the explanation that "… *orienteering is the direct route through. There's a huge difference between types of trees… planted and plantation types are better. There's less undergrowth and insects. All the stuff conservationists wouldn't enjoy*". Rather than indicating a direct conflict, this statement reveals a conflict of interests between the most desirable habitat for orienteering versus and the most desirable habitat as per the interests of conservationists.

A number of visitors mentioned having altercations with motorbike riders. These groups were out-rightly disapproved of, simply because "…*they shouldn't be here. They've been told not to come. They don't come in the day, but they still come in night though. I see the tracks. School holidays are the worst. It makes me annoyed*" (22). This is interesting since it was not a direct conflict with the bikers which upset this man, but rather the knowledge that they had been in the site despite being told they were not allowed. In this case it is presumed that the issue was about a breakdown of order and flouting of rules, rather than a one-on-one personal problem with motor-biking individuals. However, another female visitor described encounters with motor bikers as 'intimidating', and dangerous since "…*they're here in the evenings, and you nearly get run over*" (10). Conflicts were mentioned as occurring between motorbikers and private property owners who "…*don't appreciate riding on their land, because they don't want to get sued*" (1), and between bikers and police who have the power to 'crush bikes' (1).

Other disapproving comments were made regarding other anti-social or unlawful behaviours. These included one regarding the 'little yobbos', "…*the ones that burn out cars. Little 'tea leafs'*" (22). A 'yobbo' depicts an image of an aggressor, whilst 'tea leaf' is slang for 'thief'. This was also highlighted by another visitor, who labelled Sandy Lane as "…*dodgy in the evenings*" due to the joyriders, and people who 'burn

out cars' (7). Further 'dodgy' behaviour perceived as occurring in this area included couples having sex (7), and 'dogging' (slang term for public sexual acts viewed by others) (4). The offence caused by these activities caused both interviewees to 'avoid that area' (4, 7).

6.3.6 Regenerative experiences

Solitude and relaxation

Some visitors to the study site said that they enjoyed, or they came for the de-stressing or calming effects of the site, or for 'peace and quiet' (1, 3, 7, 8, 11, 17, and 22). In many cases this was linked to the absence of other people at the site. One solo male visitor stated that he enjoyed the 'solitude', there being 'no-one about' (4). One of the pair of male car photographers stated, "…*it's quiet. There's no customers or boss. It's relaxing… peaceful*" (7). Here then, the site was favourably compared to an alternative environment which the individual's accessed regularly. This type of comparison was also invoked by the teenager bikers, who explained that, "…*the skate park is better as you can blade there. And here's mainly for dirt jump bikers. The skate park has loads of people though… it's crowded. Here there's hardly anyone. Well, only at weekends*" (3). This is a telling comment, as shows that these boys enjoyed the option to engage in other activities made available through the smooth concrete land surface of the urban skate park, but perceived the crowded nature of the park to be a shortcoming of this environment. In comparison, the solitude offered by this dirt-jumping site gave it an allure which compensated for the trade-off of other activities.

Two further interviewees offered that they too purposefully came to this site due to it having fewer visitor numbers. The couple who were playing with remote control cars said that travel 'here', despite there being nearer woods because "...*the nearer woods are much busier*"(10). The old gentlemen who came to walk the dog and sit in peace and quiet travelled from Toddington each day, despite there being a number of alternative sites closer to his home. To explain this decision, he stated that "…*it's a place of peace and quiet in an intensely populated area*" (22). Again, this shows the importance of the site in contrast to alternative environments which have in common higher numbers of people. Thus it would seem that for these visitors, the site was appreciated as a peaceful place, with few people, particularly compared to the urban environment.

The site was recognised as having fluctuating visitor levels, and further evidence showed that some visitors deliberately avoided the area at peak times. However,

notably sampling took place on a weekday, thereby missing the views of those who did come at a weekend, whether by choice or through circumstance. Nonetheless, as already acknowledged by the teenage bikers, the dirt-jump area of the site became busy at weekends (3). One solo biking male said "…*I like it empty*", and that subsequently he didn't come on a weekend as it was busier (18). One male walker specified that he purposefully made the decision to *come* alone, in order to see wildlife, declaring, *"I only ever come on my own. You see more deer when you're alone. Groups frighten them. I have come with a friend, but the more (people) you have with you, the less you see*" (11).

In the case of the lady with special educational needs (SEN) and her carer, the enjoyable calming effect was attributed by the SEN lady herself to it being 'quiet' (8). However, it was noted that, at the time of the interview it was not actually quiet, on the contrary, it was a particularly windy day, thus the sound of the trees was quite loud, and there were some very noisy birds nearby. Thus it was concluded from this statement that what was meant by 'quiet' was that there were no urban or people noises. The SEN lady, despite having limited means to communicate, seemed to understand my questions quite well, as followed her observation that she liked the 'quiet' of the wood with the statement "*I'm in a good mood today*". When asked direct questions however, she became very shy and was unable to answer. Further explanation was provided by her carer who explained that she often felt anxious, and attending the site 'calmed her down'.

Appreciation of the site as a place to calm down was mentioned frequently by visitors. For bikers, a 'de-stressing' effect was experienced as a result of undertaking the activity of biking within this environment (1). This was largely attributed to the activity itself, but this necessitated the correct environmental circumstances to provide the terrain for the activity to take place. The de-stressing effect was also most poignant when placed in contrast with other urban-type stressors, e.g. "*I have a stressful job (and) I look forward to the end of the week. I could just sit in the pub with a pint, but work is still in the back of my mind. When I'm going down a hill, I forget about everything except for what is in the way, and what 'lines' to take.*" (1). A further biker also confirmed that when he biking, he stops thinking and stops worrying (12). This was similarly a case with walking, as one male explained that "… *calms down as a by-product of walking*" (11).

People out walking their dogs also found the peacefulness of the site beneficial, again, particularly in comparison with the effects of life outside the site. One lady noted she could "*switch off*" when in the site (17). Another man also ventured that his peaceful experience was due to the fact that "*I can't see the gas bill from here! I can de-stress.*

I've got space and time to think, it's good" (10). Other visitors stated that "*I put the world to rights in my head and then go back*!" (9), and "*You can get away from it all*" (7). These examples reveal that the site enabled people to detach from everyday existence, which could be a source of stress, by offering 'space and time' to think, monitor thoughts, and reframe perspectives before 'going back'. The picture painted here is almost one of leaving civilisation, and entering another world of tranquillity externally, which promoted a similar tranquil state within.

The effects of the tranquil state gained by visiting the site were also described in a way which indicated that these lasted longer than the visit alone. One male said he "…*can hang out a bit, don't rush. It makes you feel different. Could be crappy and stressed at work, then when return you're refreshed. You feel better when you return. Like, chilled out*" (7). Another male volunteered that "*I can get in touch with nature. It has a calming effect. I can switch off- there's not much thinking. The effects last for the rest of the day*" (22). The importance of the semi-natural environment is also shown in this case, through the attribution of the 'calming effect' to 'getting in touch' with nature.

Physical fitness

Visiting the study site was perceived as offering physical health benefits in a number of forms. The open air (21) or fresh air (22) was considered healthy, as was the atmosphere of the coniferous planation "…*it's healthy, breathing the pine air*" (20). This belief was also said to exist historically, as was said to contribute to the siting of convalescent home (22) "…*built by the Jews it was. They used to bring their ill relatives up here to breathe the pine air*" (20). A number of interviewees expressed they purpose for visiting the site as being related to getting fit, getting exercise, or having a work out, and this included bikers (1, 4, 18), walkers (8, 11, 17, 20, 22), and those engaged in mixed activities (10, 24). It was commented that "…*for fitness you need to push yourself*" (10). The site offered opportunities for this, since the 'undulating landscape' provided a "*better workout*" (18), further explained by another interviewee as being because "…*it gets you fit… it has a very good effect*" (24).

Some visitors were actively using the site as part of a self-designed fitness programme, engaging in the site-based activity to either maintain fitness (24) or lose weight (4). The particular benefits of the site for doing this were described by one male, who explained that "*I've lost weight recently, and I want it to continue. I selected the bike specially. I can't commit to a gym because of work, and the gym isn't fun anyway. With biking I can come in my own time* (18). Here then, the favourable conditions of the site which make it suitable for this man to exercise relate to its accessibility, and

the autonomy this allows. This insight is provided in relation to the urban exercise equivalent: 'the gym', being a place which 'isn't fun', which requires commitment, and which has to be fitted around other duties such as work.

The physical health properties of the site were also described in relation to another urban location, that of 'the couch' (meaning a lounge couch, rather than a therapists' couch). One retired lady dog walker advised me that her and her husband "*…come here to keep fit so we're not coach potatoes*" (20). A teenage boy informed that his parents don't mind him biking at the site, since "*…as long as I'm not sitting on the couch eating chocolate they're happy*" (2). We can understand from this that 'the couch' is perceived as an unhealthy place, and that being at the site rather than this location is considered to be healthier.

Some interviewees also detailed painful aspects of their experience in respect of physical activity at the site. One lady who uses the site regularly for 'long bike rides' declared "*…it's quite horrid! (pulling a face to refer to the pain of a long ride) that hill* (points down the road) *by the time you get there, ouch*!" (10). This pain was however, understood to be a 'healthy' pain (muscles being worked) rather an injury-based pain. The orienteering gentleman, at time of interviewing, was doing static stretches up against his van after having completed his running session. This man mentioned that his friend had gone home, as 'overdid' it yesterday and was aching today so not able to run (24). The act of stretching is therefore understood to be an important part of orienteering/ cross country running, which has the ability to mitigate some of the effects on the body of this intense physical activity. Finally, the lady who was walking the paths for the Rambler's Association was using 'Nordic Poles', and explained that "*I've got a bad back- the poles take some of the weight off, so I can still get about*" (23). Without the use of these poles, her back problem would have prevented her involvement in the walking exercise, however, her discovery and use of these walking aids enabled her continued participation. These comments show that some aspects of physical activity at the site, although beneficial, can create painful experiences for individuals, and those who continue to engage in these activities either accept or take mitigating behaviours to manage or alleviate this pain.

Pleasure

The majority of interviewees expressed the reason for their visit to be for fun, enjoyment or pleasure (1, 3, 4, 8, 10, 11, 14, 15, 16, 17, 18, 21, 22, and 24), such as obtaining pleasure through playing with remote control cars (10) (Plate 6:17). The sense of pleasure for bikers was attributed to various sources, including cycling the paths, tracks and jumps (14, 15), engaging with the dirt and digging (1, 2), and going

through puddles (3, 4). Thus the sense of 'fun' was connected to deliberate use of certain features of the natural environment, and included tangible, tactile contact with soil and water, and proprioceptor stimulation linked to feeling the ground beneath the bike, and gravity whilst jumping. The notion of intention was shown through a comment from one male, a father attending with his son and other close friends, who expressed the belief that the dirt jump area was "…*purpose built for kids to have fun*" (14a). A further male from this same group went on to attribute the pleasurable success of a visit to taking risks but avoiding injury, stating "…*we're happy if we all escape alive. If we leave with no bad injuries and no visits to hospital*" (14). This comment reveals the element of unknown, lack of control, and physical risk is inherent to this type of 'fun', but that injury and hospital attendance reverse the pleasurable effects gained.

Plate 6:17: Couple playing with remote control cars, Bow Brickhill Park

Individuals engaged in other activities experienced enjoyment from seeing or being close to wildlife (2, 8, 20) and from being in the open air, and/or breathing 'fresh' air (7, 21, 22). One man, unaccompanied and walking his two dogs, was able to clarify that the features he enjoyed about the site included the extensive wildlife (especially small deer), the trees, the difference between habitat types, and the iron age fort (11). Furthermore, a sense of enjoyment was attributed to the woodland *walk* itself (11),

showing the importance of the activity within the setting to the experience of the individual. This was also shown through reference to the experience of pleasure from a "…*sense of achievement*", connected to pushing the boundaries of physical fitness (4). Whilst these experiences were not site-specific, the activity which led to them was heavily linked to the environment surrounding the individual at the time, and which had been selected for its ability to provide such an experience.

It should also be noted that the lady with special educational needs who had limited capacity for speech, was quoted by her carer as 'often' saying "*I enjoyed that*" when getting home after her visit to the wood (8). This is potentially a significant finding, as shows even a person with limited ability to express themselves was able to recognise the pleasure experienced as a result of visiting the site, and convey this to an important individual in their life; the person responsible for organising the trip itself.

Play

A number of statements related experiences of the study site to childhood and/or 'play'. For some bikers, current attendance of the site was directly linked to play, shown by comments such as , *"we* u*sually come together- it's arranged by text during the week. We say "are you coming out to play?"* (3); *"we are boys with toys" (4);* and "*you pay to play" (6).* Others likened their activities to childish pass-times, saying, *"…you get to mess around" (2);* and, *"we're like kids- we go through puddles trying to splash each other" (4).* Some people had been visiting the study site since childhood (7, 8, 9, 10,), such as the gentleman who professed to visiting the site twice a day for his whole life, adding "*I used to run. As kids, we used to run round here. Round Danes Wood Battlements*" (20). This same gentleman had introduced his wife to the wood when they were married, she being a daily visitor for over 50 years. This couple had brought their children when they were little, and their children (now grown up) bring their grandchildren to the wood when they visit. For others, using the site brought back memories of childhood experiences that happened elsewhere.

Plate 6:18: Child playing with sticks, Old Wavendon Heath

For one male biker (18) biking was arguably a way of retaining his link with his home town. Born in Scarborough, he explained that "…*my family's there, I visit them regularly. My friends there ride mountain bikes",* later saying *"I have friends who do this in Scarborough*" (18). For the male orienteerer, his current activity was connected to "…*when I was 11 years old I learnt to read a map, and use a compass*" (22). The elderly gentleman 'winding down from life' mentioned how liked seeing children (Plate 6:18), and pupils from the local school doing their cross country runs, as it reminds him of when he was young (22). One man who associated dirt jumping with children (14a above) revealed that, "*I enjoy riding round myself… I do some of the little jumps*", thus showing an association between his activity and being 'a kid'.

Risk and injury

Perceptions of safety and risk were distinctly different between non-biking and biking visitors to the study site. For bikers, biking in the wood was considered a safer alternative in comparison to riding on the roads (18) due to the traffic, safer than motor-cross (1), and safer than dirt-jumping in the urban (concrete) skate park as "…*sand is better- it's softer*", and since there were "…*no twats here*" (2). There was however, a high level of risk associated with biking in the study site. A number of bikers detailed injuries sustained in the study site, ranging from "…*scratches and bruises, minor injuries*" (1), to broken bones and injuries requiring hospital visits (14).

These injuries were generally accepted as part of the activity, particularly amongst downhillers, such as the group who admitted "…*we all get hurt! (said laughingly)… Not too serious injuries though*" (man 1)… *"… I broke my collar bone once*" (man 2)… "*I broke my wrist 8 weeks ago that's healed now so I'm back here biking again*" (teenage boy) (14). That these broken bones were, in this context, considered 'not too serious' is probably in relation to other injuries which have occurred at the site. For example, it is well know that "…*a kid nearly died up here a year or so ago. He crashed and wasn't wearing a helmet, and banged his head on a tree stump. He got 2 brain haemorrhages*" (12).

One of the teenage dirt-jumping males confided that "…*it's not really safe though. Well it depends on what you do. You could get carried off in a helicopter*" (2), showing that the perception of the level of risk related to 'what you do', and some activities could lead to injury serious enough to require an air ambulance. First hand evidence of the danger of biking was gained through observation, when one of the male bikers I had interviewed crashed, flew over the handle bars of his bike, and collided with a tree whilst data collection was on-going. The force of this impact broke the man's helmet (a substantial £120 piece of protective gear) and judging by the damage caused, had he *not* have been wearing it he would most likely be in a serious condition. This man brushed off the incident saying "…*I always come off a few times*" (1).

Bikers were quite familiar with the hazardous elements of their activities. Dangerous features were cited as being trees (1, 2); travelling at speed (12), and a combination of these; "…*trees are the most dangerous things to hit at speed*" (1). However, trees also had protective aspects to them, providing shelter from the sun and the weather (1), and being "…*handy to grab when you're falling down a cliff*!" (2). Some jumps were perceived as dangerous (1, 14, and 15), and in particular, the "…*take off and landings… If you overshoot them, you're landing on more wood structures*" (12). One biker considered that "…*hesitating is the most dangerous thing you can do*" (1), indicating that the state of mind of a pre-jumping biker to be of high important in landing a jump safely. Other dangerous features which related to the site itself included the 'winding cross trails' (12), since these affected what it was possible to see: likewise "…*when the ferns are tall like this there's more risk*" (12). Colliding with bikers and pedestrians were also cited as being risk factors (1, 12). In response to these dangers, bikers undertook mitigating behaviour to lessen the risk of injury. Wearing protective pads and a full face helmet (1, 12) (Plate 6:19), riding in a group (1), and doing 'what feels safe' (1, 4) were mentioned, this last point relying on an element of self-awareness and intuition, since "…*if you don't feel something is safe you don't ride it*" (12).

Plate 6:19: Cyclists of all ages wear protective helmets, Aspley Woods and Heaths

Moreover, it would seem that the element of risk is for some, a crucial part of the experience itself. For example, one downhiller offered the insight that "…*I say to my wife, if you're not falling off, you're not pushing the boundaries*", and his friend ventured later in the interview that "…*adrenalin is key to a lot of it. Hitting trees and getting back up*" (1). This point was further developed by another biker, who explained that "…*people push beyond their own limits. Kids overdo it. And men too. There's a culture of one-up-manship. It's macho*" (12).

Despite the risk of injury, bikers generally felt that they were 'safe' at the site. The group of downhillers, and a further 3 male adults standing close by all agreed that they felt safe (14), and explained that they kept coming despite any broken bones. The teenage brothers on bmxs said "…*we feel safe here. Our parents feel we are safe here. We get hurt every time we come, but we still come*" (3). The man with extensive knowledge of other biking sites, and the history of this site said *".. I still consider it to be safe here*" despite the knowledge of past injuries which have occurred (12). Likewise, despite the personal injuries sustained at the site, both the two teenage dirt-jumping boys and the two downhilling males said they 'still come though' (1, 2). Henceforth it is concurred that 'feeling safe' at the site is, for bikers, not connected to the threat of injury, since this considered an acceptable risk. As one biker put it, "…*the possibility of getting injured is the price you pay for riding*" (2).

6.4 Discussion

Consideration of cultural services as 'place' has shown this ecosystem service is situated within an area of complex interplay between individual/group activity, physical features of the environment, and human experience. Whereas there is some convergence between these place components, it is also evident that not all people engaged in the same activity at the same location have the same experience. There are vast differences between experiences of the same physical features, depending on the activity which is involved. This appears to be related to the sensory information which is acquired, and through the particular features of the environment which an activity brings an individual into contact with. Biking for the 'adrenalin rush', to get on a 'natural high', breathing the 'oxygenated air' or sitting to 'get in touch with nature' would seem to indicate physical states (e.g. highly stimulated, deeply relaxed) ensuing from exposure to the same physical features but which result in different interoceptor-based sensory experience. The proprioceptor sensations of 'running on the sandy soil', or 'jumping a dirt ramp'; or the exteroceptor sensations of 'hearing birds', 'smelling pine air', 'getting covered in mud' or looking at 'picturesque' trees all indicate a range of multi-sensory information which is available at the site depending on the activity and orientation of the individual. Furthermore, feature-specific activities (e.g. down*hill*ing, *dirt*jumping, orienteering through plantation) predispose particular sites to support certain activities, whilst impeding others.

This position does however assume that the components of place (activity, features and experience) are themselves stable constructs. It is noted that there are differences in interpretations of place which relate to individuals' previous experience. Statements that begin 'I remember when…', and comparison between features of the site now and as it was (e.g. 'before Milton Keynes'; 'before the bike track') show individuals with a longer association with the site have an altered perception of events given their ability to recognise changes over an extended period of time. It was also commonplace to situate experience of this location in relation to other remembered locations, (e.g. other woods, 'urban settings', the skate park, home, the 'rest of the country'), or alternatively to regard the wood as a 'unique oasis', 'nowhere else has woods like these'.

Other individuals used sensory inputs from the landscape to reminisce upon their lives, significant since "…awareness of the past is an important element in the love of place… history is made visible by monuments in the landscape" (Tuan, 1974: 99). Childhood references ('boys with toys'; 'coming out to play'; 'reminds me of when I was young') were sparked by activity at the site, whilst elements of the landscape (the 'tall trees', 'the ferns') served as reminders of past visits to foreign countries. Knowledge of

historic built artefacts at the site (Second World War bunkers and the Iron Age hillfort) allowed individuals to reflect on their own past, and the imagined past lives of other people's. As such, it would seem difficult to objectively separate the experience of the physical features of this site from experience generally. The implication of this is that cultural services are not linked solely with a particular geospatial location, but are situated in a perceptual dimension which is then projected onto the landscape.

Some activities also enabled the generation of 'feedback' from the land. The building of dirt-jumps and downhill courses, described as 'forming the land', and repeated riding of these land formations allowed for feedback loops which involved adaptation of the earth and subsequent alteration of sensory experience. These activities were said by bikers to enable them to 'push the boundaries', the clarity of mind regarded as being 'in flow'; and pain from less successful adaptations accepted as 'the price you pay'. Other activities allowed feedback from the landscape through sensations such as 'walking up hills' as an indicator of physical fitness, and 'splashing through puddles' as a motivator of positive attitudes. Feedback also resulted from interactions with other site-visiting individuals, ranging from familiar conversations with 'ok people', to conflict and 'one-upmanship' between others. Alternatively, there was a *lack* of feedback described. Reports of 'peace and quiet', 'solitude, and 'calm' show a reduction in sensory stimulation which led to desirable experiences. However, reference to the restored quarry as a 'featureless lump of land' shows that the simplification of land attributes was not always welcome.

For some individuals, feedback acquired through these interactions enabled a 'cultivation of the self' (Hadot, 2000) through the affirmation of identity, and opportunities for self-development. Benefits from increased knowledge (of the world and of the self), beneficial changes in attitude, feelings of 'being at one with yourself', improvements in physical fitness and attainment of a 'sense of wellbeing' were associated with visits to the site. Self-attention (Carver, 1979) and self-regulation (Carver, 2004) behaviours were noted for those who advised their visit enabled them to 'think a lot' about their life, 'put things in order', and that it gave them 'space and time to think'. Although individuals did not explicitly state what it was about this 'place' which enabled self-cultivation, a number of observations were made on aspects of the site which would appear significant to this experience. People appreciated having 'choice', in habitat type, paths and activities, and 'liked the difference'. The open access, and 'riddled network of small paths' enabled spontaneity, and gave people 'different ways to go', so they could 'drift and explore', enabling a sense of 'freedom'. This freedom was also perceived to be related to the low level of control exerted over the site by the landowner and managing council, and the high level of autonomy which visitors enjoyed, allowed (as they were) to build their own jumps,

walk off the paths, and enter the privately owned site freely. The sense of the site as an unregulated space was further supported by the 'unofficial paths', lack of formal path signage, infrequent sightings of the ranger, and complete lack of night time wardening which gave opportunity for unauthorised activities such as parties, biking without permits, and illicit sexual activity.

The unregulated character of this place also appeared to encourage a view of the site as 'natural', a pocket of wilderness in an otherwise 'densely populated area', offering 'peacefulness and nature number one'. Whilst built structures and fencing was 'man-made', and 'spoilt it', the land cover, soil and topography were (broadly speaking) regarded as natural and unspoilt. The dense tree plantations resulted in a '3D structure' which concealed people and led to a feeling of 'solitude', of there being 'no-one about'; this being 'a function of the screening'. As a result, people reported a sense of 'being away from it all', away from built up areas, buildings, people, bills and urbanity. The setting enabled people to 'switch off', and to let go of every-day concerns, feeling 'refreshed' and 'better' when they returned to normality.

The release from everyday pressures, from social activities which take place indoors in highly bounded regions (Goffman, 1990: 109) such as 'the office', are in stark contrast to being 'out in the open'. The requirements of social protocol, in the "…performance of a routine… 'socialized', moulded, and modified to fit the understanding and expectations of the society in which it is presented" (Goffman, 1990: 44) is said to "…divert appreciable amounts" of individuals' energy (Goffman, 1990: 42). The pressure on individuals subject to *panopticism*, "…one of the characteristic traits of our society… a type of power applied to individuals in the form of continuous individual supervision… the moulding and transformation of individuals in terms of certain norms" (Foucault, 1973: 70) marks the 'urban setting' and 'man-made' environments as places which discourage autonomy, and encourage conformance to societal ideals. Consequentially, this 'unique oasis' provides a contrast *to*, and haven *from* the 'ever growing urban jungle'. However, it is noted that "…'wilderness' cannot be defined objectively: it is as much a state of the mind as a description of nature" (Tuan, 1974: 112). The presentation of 'uniform tree planting' and 'dead straight rows' invokes elements of 'man-made-ness', which converts the natural into 'a controlled space', and which positions "…raw nature or wilderness, and not the countryside… at the opposite pole of the totally man-made city" (Tuan, 1974: 110). Wilderness is furthermore subject to negative associations. One recent study found that walking in tended woods induced higher levels of pleasure than 'wild' ones, theorised to be due to the absence of dead wood which may induce sadness in people who are unaware of its beneficial ecological functions (Martens *et al*, 2011).

The dichotomy of 'natural' versus 'man-made' endorsed by visitors is further challenged by experts with the ability to 'read' the landscape. 'Naturally occurring vegetation' and 'ancient understory' exist simultaneously with coniferous plantation; and commercial forestry itself presents opportunities for 'natural regeneration'. Heathland and acid wetlands (not mentioned by visitors) are said to be the 'key interest' of the site for ecologists; habitats which will 'grow naturally' if the land is 'left to its own devices'. The 'colonisation' of the (man-made) Wavendon Heath Ponds, the native species present within 'formal parkland', and 'wet flushes' occurring spontaneously after the quarry restoration further blur these distinctions. As such, given that cultural services relate to ecosystems, and there is no clear demarcation between 'natural' and 'manmade' aspects of ecosystems, it has been helpful to construct a guide by which to illustrate the amount of human intervention/ technology in the physical features of this place which are salient in experience (Table 6:4, Table 6:5:).

Table 6:4: Key to Table 6:5; study site features categorised according to amount of human intervention/ technology

Features of the environmental setting		
	Material composition	**Structure/ form**
1	Natural ecological form	Completely devoid of human interference
2	Natural ecological form	Position in time and space influenced unintentionally by humankind
3	Natural ecological form	Position in time and space influenced intentionally by humankind
4	Unprocessed raw materials	Form re-arranged by humans by hand/ unmechanised tools
5	Unprocessed raw materials	Form re-arranged by humans using machinery
6	Minimally processed raw materials	Form re-arranged by humans using machinery
7	Part natural/ part synthetic materials	Form re-arranged by humans by hand/ unmechanised tools
8	Part natural/ part synthetic materials	Form re-arranged by humans using machinery

Table 6:5: Physical features of the study site ordered according to amount of human intervention/ technology

Most 'natural'

	Feature category	Broad feature type	Example of features cited by interviewees
1	Geological artefact	Landform	Greensand Ridge
	Geological artefact	Topography: surface contours	Landscape undulations; hills
	Geological artefact	Soil/ deposits	Lower Greensand; fuller's earth; (pockets of boulder clay)
	Ecological artefact	Land-cover (typical of soil type/ area)	Various heath species, Heath Cudweed, Bilberry, Gorse
	Ecological artefact	Wildlife (heath/acid grassland habitat)	Nightjar, Woodlark, Common lizard, Adder, Beautiful snout, Leiodes gallica, Amara Fulva: Lunar Yellow Underwing
2	Ecological artefact	Land-cover (related to plantation)	Scrub- bracken, nettles, brambles etc.
	Ecological artefact	Wildlife (related to coniferous habitat)	Deer, Badgers, Wood Peckers, Song Thrush etc.
	Hydrological artfct	Water features	Mermaid's Pond, wet flushes
	Atmospheric artfct	Air	Fresh air; pine scented air, climate, smell, sound (natural)
	Cultural artefact	Infrastructure/ routes	Minor path network (unmapped, unofficial)
3	Ecological artefact	Landcover	Vegetation: Trees- conifer & broadleaf plantations; heath/ gorse (restored)
	Cultural artefact	Infrastructure/ routes	PROWs- footpaths, bridleways, cycle-ways
4	Cultural artefact	Recreational/ play items	'Stick Den'; root den; dirt Jumps; downhill courses, sandpit
	Cultural artefact	Buildings (historic use)	Earthworks- Daneswood Iron Age fort
5	Cultural artefact	Infrastructure/ routes	Sandy Lane- unlevel, unmade (sand) road
	Geological artefact	Topography: surface contours	Bike track (quarry); Car park; Aspley Heath Sandpit; the 'bowl' (car-park)
	Hydrological artfct	Water features	Wavendon Heath Ponds, quarry pond & runoff stream
6	Cultural artefact	Infrastructure/ access	Steps (timber), gates (timber/ metal), fencing (timber/ metal)
7	Cultural Items	Recreational/ play items	Synthetic rope swing, tied to tree at sand Pit; dirt jump 'doubles' (with carpet)
8	Cultural artefact	Recreational/ play items	Bench (painted metal)
	Cultural artefact	Infrastructure/ routes	Concrete bridge (Aspley Woods near quarry)
	Cultural artefact	Buildings (in current use)	Houses/lodges, school, church
	Cultural artefact	Buildings (historic use)	Quarry buildings, military bunkers, convalescent home
	Cultural artefact	Infrastructure/ routes	Roads- A5130 (also Longslade Lane, A5, M1)

Least 'natural'

Whereas some of these physical features seem generic to experience, and are identified by common language terms (e.g. hills, birds, dirt, mud, trees, scenery, puddles) the capacity to identify features at a higher level of detail required specialist knowledge. Detailed labelling in relation to bedrock (e.g. quartz, silica, outcrop); habitat (e.g. heathland, acid wetlands); wildlife (e.g. adders, slow worms, common lizards); hydrology (e.g. wet flush, perched water table); and plant species (e.g. heather, bilberry, sphagnum moss) were particular to professional readings of the site. The richness of interpretations was aided by education: for a geologist, 'sub-parallel layerings' signified the 'position of the sea bed'; the 'ground could tell' a forester which areas were suitable for 'natural regen', and the widening of paths to an ecologist signified 'trampling' and constituted a source of 'habitat loss'.

The physical features described by individuals in relation to this place are those which were i) in conscious awareness, and ii) which the individual had words to describe. As such, the vocabulary of individuals was fundamental to their ability to express aspects of their experience to others. It is also observed that some features may have influenced the experience of place *unconsciously,* since *"…*a human being perceives the world through all his senses simultaneously. The information potentially available to him is immense. In humankind's daily projects however, only a small portion of his innate power to experience is called into use" (Tuan, 1974: 11). References to the 'atmosphere', 'the feel' or 'the sense' of the place indicate an experience on the cusp of conscious awareness. Deeper meaning in respect of the *symbolic significance* of place is revealed through comments such as 'a general sense of where, which direction, then I just keep going' (trust); 'trees provide the structure of the wood' (stability); and 'the understory and insects persist, despite someone removing the tree element' (continuity).

The imagery behind the 'outcrop', rock which is 'exposed at the surface' but which reveals the past, is both *esoteric*- in the sense that this is knowledge limited to the few, and symbolic in a *psychodynamic* sense- given the metaphoric associations between the exposed surface (conscious awareness) and historic geomorphic processes (past experience confined to the unconscious). Reference to the 'secret service' and hidden underground munitions bunkers reveal a sense of mystery through covert operations, and subterranean explosive devices beneath the surface of everyday activity and knowledge. The concept of getting 'back to nature' may refer to primitive drives and enduring characteristics linked to human's evolutionary development, as invoked through nature. The 'mysterious unknown' was, on occasion, translated into urban folklore, such as the 'legend of the leopard', the area where it was thought 'giant Oaks had fallen', and magical Wiccan worship at a site seen as 'special because it used to be

sea'. Tales of 'underground treasure' found through metal detecting, and '2000 year old paths' around the hillfort further imbue the fairy tale image of this place. Additional references to war, such as the quarry looking like a 'bomb had gone off'; the 'devastation' of clear fell, which 'looks like it's been blown up', and which might provoke a 'clear blood bath'; and references to military planes and Second World War munitions bunkers give an impression of epic battles and iconic imagery.

A number of paradoxes have been revealed through this analysis. The perception of trees which 'protect' and 'shield' is counterbalanced against a perception of trees that conceal danger; a 'function of the screening', which means 'there could be anything in there'. The qualities of 'unregulated nature' and 'freedom' contrast with a sense of control, perpetuated through commercial forestry plantation. The dual nature of *loving* or *fearing* wildlife is evident, as is the paradoxical circumstance of the site being open access for 'big strong men', yet limited access for the 'vulnerable' (e.g. women and the disabled). Protecting the right to access 'is important you know', since, despite the land being granted as a 'covenant to the people', access is ultimately *permitted*, and thus questions such as 'are they trying to close it?' are likely to persist.

6.5 Chapter summary

Use of the 'place' concept is beneficial to the exploration of ecosystem cultural services, given that this considers the importance of interactions between environmental features, human activities and experiences.

Site-based activities brought people into contact with different elements of the land, and led to a *multi-sensory experience* which included exteroceptor, proprioceptor and interoceptor stimulation.

The freedom granted by this place offered opportunities for individuals to engage in intentional *self-development* activities, such as improving their physical fitness, restoration, and self-regulation.

Interpretations of place related to individuals' previous experience, as shown by the comparison of site features now to how they were, descriptions of the site in contrast to other locations, and memories prompted by site features.

Common terms and everyday language were sufficient to describe many aspects of place however, the capacity to identify features at a higher level of detail required specialist knowledge.

The concept of 'naturalness' was found to be ambiguous; individuals had differing perspectives on the level of human influence upon the site, seemingly related to their understanding of forestry and ecological processes.

A number of paradoxes were observed to exist simultaneously, such as trees shielding but concealing danger, nature being unregulated yet controlled, the site being open access (for the strong) but limited access (for the vulnerable), activities being pleasurable yet painful, and both friendliness and conflict arising from social encounters.

This analysis captured the *salient* elements of place (i.e. those which individuals were aware of) however it was observed that some aspects of place may be of *unconscious* influence; revealed through descriptions of the more mysterious aspects of this place.

7 Cultural service as context

This chapter aims to explore cultural services as a phenomena intrinsically related to its spatial and temporal context. Based on desk study and expert-interviews findings (see Section 3.3.4) it utilises both diachronic (historic) and synchronic (wider-current) perspectives to explore how natural and social processes which have occurred outside the current time frame and/or boundaries of the study site, may influence the manifestation of cultural services therein. This is achieved through the consideration of documents and expert perspectives on land cover, geology, topography, urban development, land management, ecology and governance relating to the study site.

7.1 Diachronic perspective

7.1.1 Effect of geology and topography

The study site is situated on the Lower Greensand, a rock formation that stretches from South West Norfolk to the Isle of Wight (Bedfordshire Geology Group, 2011). Comprised of layers of different sands and minerals (Plate 7:1), the Lower Greensand was formed during the Lower Cretaceous period (Natural England (a), 2011) when sea-levels rose rapidly, creating an influx of marine sands into a narrow seaway which ran across the country (Bedfordshire Geology Group, 2011).

Plate 7:1: Layers of sandstone, Aspley Heath Sandpit

According to the Bedfordshire Geology Sites Manager, 120 million years ago the area would have been a 'big estuary' with typical water depths of between 0 and 10 m, and having "…*sands shifting back and forth on a daily basis, in response to the ebb of the tides*" (Geology Sites Manager, 2009). To the trained observer, the exposures of sandstone accessible at the study site provide an example of 'cross-bedding', which "…*represents where the sand has flowed down into the marine basin… showing that some kind of current was… flowing the sand down into this basin*", and this can give "…*some idea of where the old coast was*" (Geology Sites Manager, 2009). The Lower Greensand in Bedfordshire produces a landform known as the Greensand Ridge. This feature has formed during the last 400,000 years ago, since the (Anglian) ice sheet that once covered the area retreated (Bedfordshire Geology Group, 2011). The Ridge was more resistant to erosion than the surrounding soft clay since it consisted of "…*huge big thicknesses of cross-bedded sandstones*" (Geology Sites Manager, 2009), thus was left as a prominent feature on the local landscape when the ice retreated (Natural England (a), 2011) (Plate 7:2).

Plate 7:2: Western view of the Greensand Ridge from Bletchley, Milton Keynes

The topography of the site has been influenced by these geomorphic processes. As the Geology Sites Manager (2009) explained, "… *where the sands are not glued together, they're very easily eroded, hence you get all these big ravines and cliffs developing. Where they are more tightly cemented together, they're very, very resistant, and you get the small crags and bluffs, just as we saw over there- they're quite upstanding, almost vertical, and they can't be easily eroded. So it's really all to do with the selective cement of iron*".

The topography of the site has also been influenced by anthropological processes. Fuller's earth deposits found at the site are said to have been the result of a volcanic explosion (which most likely occurred in Northern Germany), or from volcanism due to the Atlantic opening (Geology Group Events Coordinator, 2009). These deposits have been quarried extensively at the site since the Middle Ages, since "…*as people realised how lucrative it was, how economically viable it was to dig big pits, they dug bigger and bigger pits*" (Geology Group Events Coordinator, 2009). Whilst the remains of hand-dug pits are seen today as depressions in the mid-section of the site (see Plate 7:6), a recent larger scale fuller's earth quarry led to profound changes in the site's land cover and topography (see Section 7.1.2). In addition, loose, unconsolidated sand has been quarried from the site for use in construction; seen most extensively at Aspley Heath Sandpit (Plate 7:3), an area now used for recreation (see Section 8.3).

Plate 7:3: Aspley Heath Sandpit

The acidic sandy soils of the site and the resultant land cover are also directly related to the presenting bedrock. These soils have been generally considered unsuitable for agriculture, and hence the site comprises ancient woodland sites which have remained wooded since the Middle Ages. As detailed by the Forestry Manager (2009), "…*the bits the farmers didn't want basically the foresters got. You know, that's, that's been a theme across Britain, we were always forced, foresters were always forced up the hill and on the poorest land, because that's, trees can grow there you know*" (see Section

7.2.2). The unsuitability of the soils for agriculture led to its status as common land which supported urban development in the Mid-18th Century (see Section 8.1). The geology of the site has also influenced local architecture, such as the use of sandstone in local vernacular buildings, as seen at the Fuller's Earth Lodge (Plate 7:4).

Plate 7:4: Fuller's Earth Lodge (vernacular building), New Wavendon Heath

Local social institutions and historic settlements have also been influenced by the site geomorphology. The green staining of the sand (noted by the Victorians and caused by the mineral glauconite) led to the naming of the *Lower Greensand* (Bedfordshire Geology Group, 2011); a name which is used in current names of local institutions (e.g. the Greensand Trust, Greensand Surgery, and the Greensand Ridge Walk). The elevation of the land over the surrounding countryside influenced the building of Danesborough Hillfort in the Iron Age, since it was "…*a fabulous viewpoint*" (Ecologist, 2009), and also the middle-class development of the heath area in the 19th century (see Section 7.1.2). In more recent times, these 'panoramic views' and distinctive 'scarp slope' (Natural England (a), 2010) have led to the inclusion of the Greensand Ridge area in local planning documents (see Section 7.2.1), and continue to influence the naming of housing developments, e.g. the 2011 'Greensand Woods' development, on the outskirts of Ampthill, Bedfordshire.

7.1.2 Socio-historic interactions between landscape and land use

The landscape of the site has had a close relationship with the development of local settlements. The presence of Danesborough Camp Hillfort provides evidence of Iron Age settlement (see also Chapter 9), and this elevated land was probably clear of trees in the Iron Age (Historic Environment Information Officer, 2009). The name of the settlement of 'Aepslea' , recorded in the charter of King Eadgar in 969 AD (Brown, 1979: 2), highlights how the environment was perceived by early villagers, as this name originates from the Aspen tree, and 'leah' meaning 'clearing'. Aspley Wood was mentioned in the Domesday Book as comprising,'…woodland to feed 50 swine' (Historic Environmental Record, 1086); and conveyancing undertaken in the sixteenth century estimated this wooded portion of the study site to comprise an area of 400 acres (Historic Environmental Record, 1591).

The expansion of the local village of Aspley Guise through the 18th century is also believed to be linked to Aspley Woods and Wavendon Heaths. According to Moore's map of Woburn (Historic Environmental Record, 1661) in the mid seventeenth century, Wavendon and Aspley heaths were unenclosed. Proposals to enclose the heaths in 1791 showed the intention to retain 150 acres of New Wavendon Heath as an allotment for supplying the poor with fuel (furze), controlled by the Church (Historic Environmental Record, 1791). A 'dramatic upsurge' in population between 1782 and 1851 (from 405 to 1303 inhabitants) created issues over how the community was to be supported (Brown, 1979: 11-14). The capacity for development was enabled by this 'Poor's Allotment', which was said to have, "…served as a safety-valve for Aspley's landless poor" (Woburn Sands and District Society, 1980: 12).

In addition to this allotted land, some villagers also continued to use the land unofficially, by squatting in the area of the Heath known as Leighton Hollow from the 1820s on (Russell papers cited in Woburn Sands and District Society, 1980: 17). Around this time, over 90% of the agricultural workforce had become hired labourers on larger farms and capitalist tenant farms after losing their right to common land through enclosure (Woburn Sands and District Society, 1980: 25). The heath area, despite having come into ownership, was not under significant cultivation due to the poor quality of the sandy soils. Subsequently in times of hardship (the Mid-19th century) destitute villagers were encouraged by the local vestry to 'reclaim the land from barrenness', and cultivate the heath as a means of survival (Woburn Sands and District Society, 1980: 45). This initiated a surge of settlement upon the heath, and despite later reservations from the Vestry (which instigated selective evictions) the settlement continued to grow, reaching 64 families in 1861. Families who had settled later sold their parcels of land to the Bedford Estate, and climbed the social ladder by

setting up in business such as timber merchant, sand pit owner, farmer, and saw mill owner. The settlement of 'Aspley Heath' was officially named as a distinct settlement in 1857 (Woburn Sands and District Society, 1980: 49-50).

Changes in land ownership from the 1700s onwards also played a part in the land cover which exists at the site today. Title deeds to Aspley Woods were purchased by the Duke of Bedford in 1717 (Historic Environmental Record, 1717), whilst another landowner, Francis Moore,"…set about acquiring Wavendon Heath with its fuller's earth and clay pits, rabbit warrens, furze and ling and patches of woodland" in 1775. Moore is attributed with transforming the environment of the village by planting 500 acres with 51,376 Scotch Firs (Woburn Sands and District Society, 1980: 18), a change which was perceived to give the area an "air of Switzerland". Moore sold his 500 acres to the Duke of Bedford in 1792, and the estate control resulted in longer term land use policies being put into place. A map dated 1826 clearly shows an area named 'Wavendon Heath Plantation', whilst another dated 1885 shows the full study site as wooded, and with sections named as they are in the current day (Historic Environmental Record 1826; 1885).

Mixed deciduous woodland and specimen trees were said to be planted in "… *fads and fashions, I mean, the Dukes of Bedford, well particularly the fourth Duke and I think the Sixth Duke were really keen tree planters*" (Forestry Manager, 2009). Planting along ancient rides and the remains of 'set routes' around the study site was said to have been "…*predominantly for aesthetics… to produce the wow factor for their guests, you know and their standing in the community… there was another couple of landowners round here who you know, they had tree growing competitions, to see who could collect the most interesting trees*". Stands of specimen trees planted for social status and aesthetics (such as Redwoods and Ancient Oak) are today found "… *all over the place. … you stop and you think, 'well why's that there?' and I think originally you know, there was a route that probably came from the Abbey, and that was, might've been on somebody's route. So you find these little artefacts around*" (Forestry Manager, 2009).

The environment provided by the study site area inspired publication of a book in 1856 (reprinted in 1858), which constituted a further significant turning point in the development of the village. Named 'The Topography and Climate of Aspley Guise', the illustrated book by Dr James Williams (Plate 7:5) portrayed the area as a 'health resort', encouraged by claims that, following six years of observation and experimentation, residency in the area had been found to support improvement for medical conditions such as consumption, rheumatism and gout (Williams, 1858: 20). Dr Williams' study led him to conclude that "… Aspley Guise is pre-eminently

calculated to furnish all the requirements mentioned as necessary to removal of disease and the re-establishment of health. Its claims are dryness of soil, equability of temperature, absence of fogs, small annual fall of rain, purity of water, moderate elevation above the sea level (between 300 and 400 feet), and with all, sheltered groves for outdoor exercise" (William, 1858: 78).

Plate 7:5: Illustration of Aspley Guise (Williams, 1858)

The health restoring properties of the site were advised to be related to natural conditions, i.e. "…the air of Aspley is generally admitted to be very pure, buoyant, and exhilarating. Its freshness, particularly in elevated situations (is comparable to)…a see-breeze. This is partly due to the undulating character of the surface of the ground, and the open free circulation admitted by the widening extremity of the valley-like portion to the South East." (Williams, 1858: 31). Psychological benefits were advised to be gained from the land-cover, i.e. "…the time-sheltered walks and rides with which the locality abounds; they give a cheerful appearance, even in the depths of winter, from their green and luxuriant foliage" (Williams, 1858: 10). Positive reviews of the book followed in newspapers such as the Bedfordshire Mercury (08.11.1856, cited in Williams, 1858) and Northampton Mercury (13.12.1856: cited in Williams, 1858), and papers published in the Association Medical Journal (1856: cited in Williams, 1858) and the Journal of Public Health (1857: cited in Williams, 1858). This book (and publications) is attributed with the initiation of middle-class settlement which characterises modern-day Aspley Heath (Woburn Sands and District Society, 1980).

The most significant historic occurrence which has shaped the study site in its current form has arguably been the quarrying activities. Thomas Jeffery's Map of Bedfordshire (Historic Environmental Record, 1765) shows the presence of a fuller's earth pit in Aspley Woods, whilst other records show that fuller's earth was being excavated from a pit in 1782 (Historic Environmental Record, 1782) and sand from a pit in 1840 (Historic Environmental Record, 1840). However, the Geology Group Events Coordinator advised that records of fuller's earth quarrying "*…date back to about the eleven hundreds. There's records at St Albans that the monks there gained their fuller's earth from here, and got it there by cart down to St Albans. This was the main source*" (Geology Group Events Coordinator, 2009). The remains of hand-dug fulling pits, which were originally 'bell-shaped' and up to 20m deep (Fowlston, 2009), are seen today as multiple depressions in the ground of Old Wavendon Heath (Plate 7:6).

Plate 7:6: Indentations in land surface from compaction of historic fulling pits, Old Wavendon Heath

In the Mid-20th Century, mechanical excavation began following the landowner's leasing of the site to a commercial quarry firm. Large-scale mechanised quarrying began in Aspley Heath in 1951 (Bedfordshire and Luton Geology Group, no date), and at its cessation in 2002 had removed and replaced approximately 50,000 tons of earth (Historic Environment Information Officer, 2009). A series of aerial photographs from 1946 to 2007 (Bedfordshire HER) show the changing land cover and contours of the site. (NB. Percentages of land cover have been estimated informally, not measured).

Plate 7:7: Aerial photograph, Aspley Woods and Heaths, 1946

In 1946 (prior to open cast mining), approximately 50% of the site was deciduous (ancient) woodland (Plate 7:7). By 1968, approximately 10% of the deciduous woodland had been developed into quarry (Plate 7:8), extensively altering the visual landscape of this area (see Plate 7:9).

Plate 7:8: Aerial photograph, Aspley Woods and Heaths, 1968

Plate 7:9: Aspley Woods and Heath quarry, 1965

Through the late 1960s and mid-1970s, quarrying consumed the entire central plot of deciduous and coniferous woodland in Aspley Woods (Plate 7:10) (an estimated 50%) , and previously mined areas had begun to be replanted with conifers.

Plate 7:10: Aerial photograph, Aspley Woods and Heaths, 1976

Plate 7:11: Aerial photograph, Aspley Woods and Heaths, 1981

By 1981, quarrying had spilled into the coniferous plantation of Old Wavendon Heath (Plate 7:11), increasing to its peak around 1986. By this time, mining in Aspley Woods had ceased, and this area was replanted, (it is believed) with conifers (Plate 7:12).

Plate 7:12: Aerial photograph, Aspley Woods and Heaths, 1986

Plate 7:13: Aerial photograph, Aspley Woods and Heaths, 1991

By 1991, the majority of Wavendon Heaths had been mined (Plate 7:13). This area was filled and replanted as coniferous woodland by 1996 (Plate 7:14). The A5130 road was diverted to enable increased mineral extraction, leading to the removal of remaining mature roadside trees.

Plate 7:14: Aerial photograph, Aspley Woods and Heaths, 1996

Plate 7:15: Aerial photograph, Aspley Woods and Heaths, 2002

The final pit was dug in 2002 (Plate 7:15), and Aspley Woods was then subject to a heathland restoration agreement. This land was filled and replanted, and by 2007, the only remainder of quarry workings was the building in Aspley Woods (Plate 7:16)

Plate 7:16: Aerial photograph, Aspley Woods and Heaths, 2007

As such, approximately 50% of the study site has, in the past 60 years, been subject to quarrying activities, resulting in the loss of an estimated 20% of the ancient mixed woodland and the flattening of Ling Hill (Aspley Woods). This elevated peak was formerly shown on the Bedfordshire Ordnance Survey map of 1902 as being 476 feet above sea level (Historic Environmental Record, 1902) but is no longer marked on maps, and is not perceptible through site visits. The majority of the site (2012) is currently under plantation.

7.2 Synchronic perspective

7.2.1 Demographics and land use planning

National changes in population and political systems have an impact on the study site. An increasing UK population (particularly in Southern England), coupled with a trend for people living in single occupancy residences has created a high demand for housing and infrastructure (Lawton, 2010), leading to development of the 'Sustainable Communities: Building for the future' plan (ODPM, 2004). Subsequent sub-regional strategies proposed locations for major urban growth between 2001 and 2021. In the vicinity of the study site, new homes were proposed for Bedford (19,500), Luton/ Dunstable and Leighton (26,300), and Milton Keynes (44,900) (Government Offices for South East, 2009; and East of England Regional Assembly, 2004). The study site has been acknowledged to be "*…in the middle of major growth areas serving the population of Bedford, Aylesbury, Milton Keynes, Dunstable & Luton*" (* Countryside access staff member, 2011). One such area, the Milton Keynes South-East Strategic Development Area comprises 10,400 dwellings, and is approximately 3km from Aspley Woods and Heaths (Figure 7:1).

Green infrastructure plans in Bedfordshire and Buckinghamshire have been based on this planned urban expansion, and in turn have influenced site management plans such as the access agreement (see Chapter 8). Aspley Woods is perceived to be green space of 'strategic significance' at a county level, and is noted to attract a high level of users at a catchment of approximately 3.2 km^2 (Bedfordshire and Luton Green Infrastructure Consortium, 2007). The Milton Keynes South-East Strategic Development Area (SESDA) has led key staff involved with the Greensand Trust and Local Authorities to consider the site an 'urban fringe woodland', since "*…literally, they'd only have to cross the, people'd have to cross the road and they'd be in the woods*" (Ecologist, 2009).

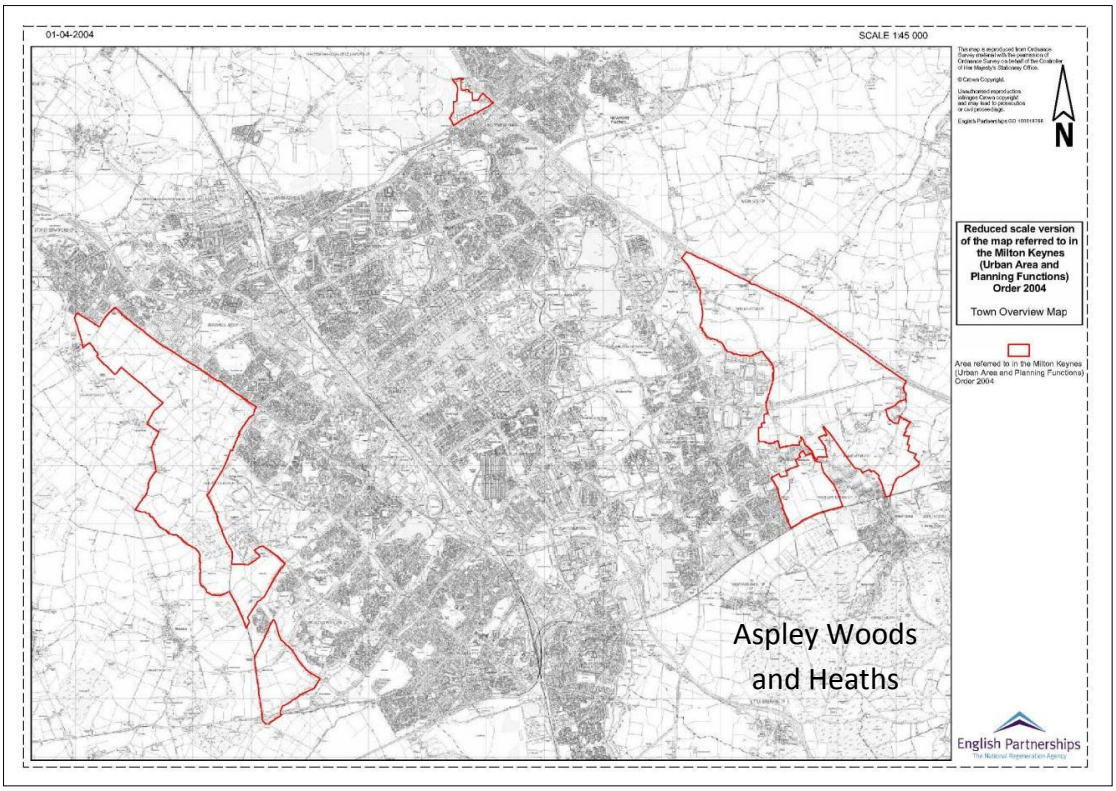

Figure 7:1: Proposed urban development areas, South East Milton Keynes (Milton Keynes Council, 2010)

In July 2010, the arrival of a new UK government led to a statement advising the revocation of spatial strategies (DCLG, 2010). It advised there would be "...new ways for local authorities to address strategic planning and infrastructure issues", and advised the continued progression of Local Development Frameworks as core strategies to reflect "...local people's aspirations and decisions on important issues" (DCLG, 2010:2), and this new strategy of 'localism' has affected planning policy. MK Council has "...welcomed the opportunity to review its plans for the future of the Borough without the housing targets imposed at regional level" (MK Council, 2010: 84), and responded by reducing its development targets for the area to 28,000 dwellings (MK Council, 2010: section 23). However, whilst housing targets for SESDA were revoked, the area is still marked as a 'Strategic Reserve Area' and/or 'Future Development Area'. Urban growth is said by the council to be 'still essential', and it has been commented that in actuality, a *greater number* of homes are needed to meet projected growth than that proposed by the revoked regional plan (MK Council, 2010: 84). For such reasons, local development and green infrastructure plans formulated in relation to pre-2010 growth targets have not been replaced.

However the *implementation* of local plans has been complicated by local authority change. Restructuring at MK Council has led to the loss of the Landscape and Countryside access staff member post, following the retirement of a senior landscape specialist (personal communication Jamie Chambers, 2010). The restructuring of Bedfordshire County Council into the unitary authorities of Bedford Borough and Central Bedfordshire (2009) has led to the loss of the Environment and Heritage Department and key ecology and historic record staff (personal communication John Comont, 2010). The loss of key landscape personnel means there are now less staff at local councils with expert knowledge of sites such as that under study, who are able to be involved in policy making and local development.

Funding issues have provided a major obstacle in the renegotiation of the 2012 Aspley Woods Access Agreement (discussed in Section 8.2), as "…*local authorities are under severe financial constraint"* and bodies such as Natural England who *"…used to be a major player on countryside access… unfortunately they haven't got the funds which they used to have and with the current downturn in the economy it is unlikely that new funding sources will be available to support the initiative*" (* Countryside access staff member, 2011). Issues such as this have led to a radically altered political philosophy which requires outdoor sites (funded by local authorities) to be financially self-sustaining and authorities to work more closely with the local community and volunteers (* Countryside access staff member, 2009). In regards to the Access Agreement, this led to proposals to position income-generating commercial ventures within the study site, and the negotiation of a sponsorship deal with a US cycling company based in Milton Keynes, neither of which were acceptable to the landowner "…because of the desire to keep the woods in their current state as a working woodland and a low key access site" (personal communication Countryside access staff member, 2012). A new funding agreement was provisionally agreed but "…has not yet been signed due to problems in overcoming unauthorised parking on the verge outside the mountain bike activity area; this is shortly to be resolved with the creation of 15 car parking bays in the nearby lay-by and constructing bunds along the verge in question*"* (personal communication Countryside access staff member, 2012).

In response to the shifts caused by rapid economic and political change, uncertainty over funding and potential future urban development, changes were also made to the time period covered by the 2012 Access Agreement. The agreement period was reduced from 20 years to 10 years "…*because of the growth of Milton Keynes … (we) wanted to see the impact of Milton Keynes and how the wood environment changes over the next 10 years and all parties needed to assess whether the funding available was sufficient to continue managing the wood for access. A 5 year period was*

discussed but was rejected as it is not long enough to bring in any grants or any other external income" (* Countryside access staff member, 2011).

The study site continues to be regarded as "…*an important green infrastructure site because of its strategic and local significance for residents of Milton Keynes, Buckinghamshire and Bedfordshire*" (Countryside access staff member, 2011). Additional housing development could to potentially lead to further increases in visitor numbers, a trend observed by the ranger who commented that; "*I've been doing this for seven years, and I've noticed in 7 years now there are a lot more people in the wood. There are more instances of anti-social behaviour*" (Ranger, 2009); and the Forestry Manager who reported that "…*public pressure is definitely increasing… over the last ten years I've noticed it, the rangers have noticed it…more people, more and more people coming to the wood every year*" (Forestry Manager, 2009).

7.2.2 Forest management and land cover

During the past century, a key objective of land use has been the production of food, with a focus on higher yields using new farming methods and technologies (Burgess and Morris, 2009; Lawton, 2010). However since the 1970s, increased food security and environmental awareness has meant that land use in England is now often *multifunctional*, and there is greater awareness of the wider benefits different habitat types can provide (Woodland for Life, 2010). The UK has the lowest amount of land under woodland in Europe at 12% (Forestry Commission, 2010, ref a). The study site is based within Woburn Woodlands, part of the Bedford Estate. Of the entire estate, 1483 ha is under woodland (28%), and this is divided amongst five wooded 'blocks' centred on Woburn (Bedford Estate, 2003: 4). The woods are managed as commercial forest (Plate 7:17), and the Forestry Manager is "…*tasked each year to produce us, but it's a small profit, but we do, we're one of the few forestry, well traditional estate forestry departments that do generate a profit*… " (Forestry Manager, 2009).

Plate 7:17: Forestry work, Bow Brickhill Heath

Bedford Estate forestry operations receive financial support through grant schemes administered by the Forestry Commission (FC). The FC, being the Government department and 'competent authority' for the management and regulation of woodlands has as its goal "... always to ensure that, at a practical level, Britain can use its forests to contribute positively to as many of the nation's needs as we can while sustaining this great resource for the future" (Forestry Commission, 2010, ref b). Forests with grant support must meet the sustainable forestry criteria set out in The UK Forestry Standard (Forestry Commission, 2004); a complicated process since "…*the new grants which are very environmentally orientated, they're worth going for… but again you've got to take the balance. At the end of the day, is it worth all the hoops and hassle that you've got to jump through to go for it*?" (Forestry Manager, 2009). Nonetheless, despite reservations, the Woburn Woodlands met criteria set by the Forestry Commission to receive an English Woodland Grant Scheme grant, for an area which includes the study-site (Figure 7:2).

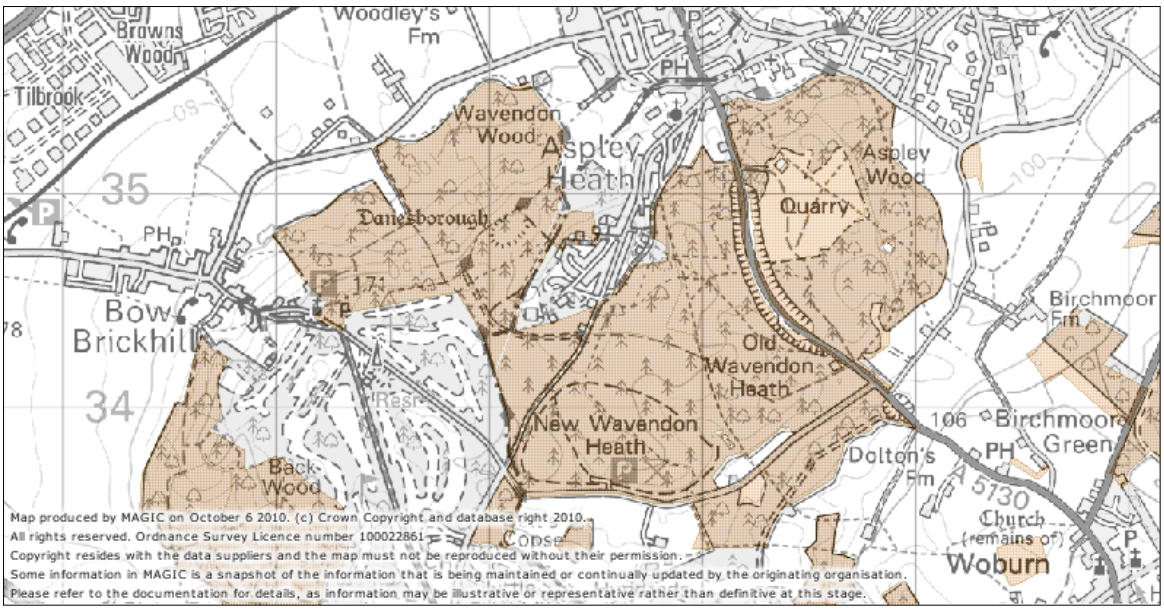

Figure 7:2: Area of the study-site covered by English Woodland Grant Scheme

The UK Forestry Standard governs good practice and monitoring for woodland creation, felling, restocking, and the management of woodlands; with special advice given for new, new native, semi-natural and small woods. Grants in accordance with this require the submission of a 21 year Forestry Plan (Bedford Estate 2003), and subsequently, estate procedures relating to the size of felling coupe, restocking policies, and tree maintenance estate felling should be broadly concurrent with overall directives decided at this national level. However, in practice this is open to adaptation, since "*…we agreed within that plan to give the estate as much flexibility as possible. You know it's particular with forestry, when you're dealing with ever changing and fairly complex factors on any one site, you need as much flexibility as you can to deal with it. So we agreed as whole bunch of general principles. And one of them was to maintain the balance between conifer and hardwood. But within that I get quite a lot of flexibility with what I do with it*" (Forestry Manager, 2009). Current woodland cover at the Aspley site is approximately 50% conifer and 50% broadleaves, and includes "*…Ash (grown) to 70 years, Sweet Chestnut to 70 years, Oak to 140… Conifers generally 70-80 years…Corsican Pine which grows a lot faster than Scots Pine; (and) Norway Spruce which probably only gets to 40 or 50*" (Forestry Manager, 2009). The biggest area of broadleaves is however, given over to Sweet Chestnut, a Mediterranean species that "*…loves light dry sandy soils, and it grows like a conifer, it's fantastic stuff, you know and it's almost got the properties of Oak. You know, I love it, I've been planting more Chestnut too; particularly with the problems of Oak, you know, I'm kinda hedging my bets a wee bit. But if a real problem does strike in with the Oak you know, we've got the Chestnut to fall back on*" (Forestry Manager, 2009).

Most areas of the site are subject to a group clear-felling policy, since *"… if you go over to a continuous cover system it becomes a lot more complicated…. it's actually quite difficult to manage*". The clear-fell system is noted as being "…*the simple system*"; and produces a very particular type of land cover, since "…*what you do is you plant your trees, you get them established, they come up, they dominate the site, they suppress the vegetation, and they put all the sites resources into those trees. But to dominate it you want quite a high stocking. But you end up with very thin, drawn up trees. So what you do is you then go and start to re-space them, take out those with poor form, … that's called thinning…. then you get to the final stage where they're either getting too old, too big, too sick and that's when you just clear the site and start again*"(Forestry Manager, 2009). Subsequently, the land-cover at the study site is comprised of wooded 'compartments' dominated by a single species. Trees are, by and large, planted in straight lines in a 'grid-like' formation. The conifers have thin trunks and are planted close together, creating a dense blanket of tree cover with little light reaching the forest floor. In the densest areas, sparse ground fauna exists, and the ground is covered with pine needles and decaying branches. Areas with conifers of a lighter density (either through planting or thinning) have prolific ferns at the base; and deciduous plantations share space with shrubs and smaller self-seeding trees such as birch and holly. Open clearings exist periodically where compartments have been group-clear felled, and in these, an abundant understory consisting of bracken, ferns, gorse, bilberry and heather (amongst other plants) exists.

Estate forestry choices have been influenced by market forces and political trends, in order to produce timber of commercial value. Whilst softwood timber sales (destined for the mass market), have been impacted by international trade (with different regulatory and economic structures) commodity and fuel costs have presented opportunities for wood as a *biofuel*, leading to a 'new optimism' regarding the economics of local woodland management (Greensand Trust, 2008: 40). Public pressure and government policy on renewables are perceived to be driving a growing demand for biofuels, particularly from local developers "…*who need the biofuel angle to get the planning permission*" (Forestry Manager, 2009). Thus birch, usually regarded to be a 'low grade hardwood material', and 'a weed', is reframed in the context of biofuels, and "…*all of a sudden becomes a sort of viable commodity… I want to manage that, I want to nurture it*" (Forestry Manager, 2009). Nonetheless, whilst birch is likely to be accommodated within the wood, conifers will still be preferred for the mass market as these are "…*still faster… you know they come into production fast, a lot faster than the hard woods*".

Notably, the aforementioned quarry building is not currently housing wood pellets, but has instead become a store for biosolids (Plate 7:18), in close proximity to the area of

restored land which was previously fuller's earth quarry. As part of the planning agreement for the quarry, the excavation company, Steetleys were responsible for restoring the land to heath and woodland (County Ecologist, 2007). The land was subsequently planted by subcontractors with trees and gorse at high density, "…*then they (Steetleys) walked away, and they left me with the problem… the spec that they worked to is useless from a forestry point of view. I mean it's actually left me with a big liability because the weeds, well what I would class as weeds- gorse, are totally dominating the site….I've got, I've got this nightmare to deal with*" (Forestry Manager, 2009).

Plate 7:18: Old quarry building and biosolid operations, Aspley Woods

Cessation of the restoration agreement in 2010 has consequently seen the area ploughed, the gorse removed, and the land treated by 'biosolid incorporation'. The use of biosolids to improve the fertility of sites for afforestation has grown in popularity as a response to falling timber revenues (Moffat, 2006:2). Its use is controlled by Waste Management Licensing Regulations, since the product (treated sewage sludge) can contain pathogenic organisms, viruses and parasites. As such, exclusions apply to the use of biosolids in certain forestry contexts, including on Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs), areas subject to management for nature conservation (e.g. ancient woodlands, plantations on ancient woodland sites), and Local Nature Reserves

(LNRs); designations which relate to legislation e.g. the 'National Parks and Access to the Countryside Act 1949'. It is also recommended that biosolid incorporation is not utilised in areas used for recreation or those having 'high public use', and decisions of biosolid application should involve consultation between forest users and management (Moffat, 2006:8). However, since this area of the study site has only non-statutory designation (County Wildlife Site), and no definition of 'high public use' is provided, the use of biosolids is permitted. Subsequently a noxious odour presently pervades the air on the Western portion of the study-site, which (in May 2012) is barren and depopulated of land cover. Presumably in the future however, with the fertility of the site improved, new woodland will be recreated. This is of particular interest, since the site as will have undergone rapid and extensive change in a relatively short period of time, from ancient woodland, to quarry, heathland, biosolid-treated soil, and back to woodland in approximately 60 years.

Forestry activities at this site subsequently reflect a delicate balancing act between 'natural' forces (e.g. geological, ecological, meteorological etc.), economic forces, political regulation and public interest. The expertise and aspirations of the forester are paramount to choices over what trees are planted and what felling system used, within limits posed by grant criteria, markets and site conditions, as "*.., you know, the whole things got to pay for itself, you've gotta work to markets, you've got to try and control vegetation, control wildlife, people and all the rest*" (Davie Hardie, 2009). However, whilst the production function of the land is a main priority ("*… at the bottom of it, as a commercial forester, if that doesn't pay for itself long term, I'm in trouble, because I know the grants will change next year*") the circumstances of land owned by an aristocratic family has its own particular nuances which are not necessarily profit-making: *"… I don't want to sound too mercenary here because particularly in the estate, there are so many other variables at work. A lot of the time I have to forget about the bottom line*" (Forestry Manager, 2009).

7.2.3 Ecological significance and conservation

In recent years, nature conservation has shifted from a focus on protected sites and areas, to a focus on ecological networks, and the maintenance and enhancement of biodiversity at a *landscape level* (Beds CC, 2008). Lawton (2010) argues that this is important, as a review of England's wildlife and ecological network found that many of England's wildlife sites are too small to be effective, and that a number of key species are in decline due largely to habitat loss (Lawton, 2010). Heathland in particular is stated to be one of the most threatened habitats in Britain (Bedslife, 2007) and since the UK holds 18% of the world's heathland, the existing habitat is held to be of international significance (Lawton, 2010). Additionally, the restoration of

environmentally degraded land which has been damaged over the last century is now a key area for conservation (Sir Henry Aubrey-Fletcher, Bucks and MK Biodiversity Partnership, 2008).

The study site contains one designated SSSI, one designated ancient woodland, and two areas with non-statutory (wildlife related) designations. It also includes four habitat types considered a priority for conservation, and evidence of the presence of an endangered species which is protected by European legislation. Furthermore, a large number of rare or scarce species have been sighted at the location (see Appendix A.7). The area of the study site which was previously fuller's earth quarry has been subject to a restoration project, and the entire area is considered to be a "…*key biodiversity hotspot*" (County Ecologist, 2007). Bedfordshire county biodiversity forum are undertaking mapping activities to expand, buffer and link county sites as part of an ecological network, "…*out of a realisation that discrete protected sites are all very well but they don't do much for the rest of the area … and the rest of the area outside those discrete protected sites might be very important*" (County Ecologist, 2007). Wavendon Heath Ponds SSSI (SP 931336) represents a regionally scarse acid wetland community consisting of several habitats; ponds, meadows and wet woodland (Plate 7:19).

The three artificially created ponds are fed by a wet flush, and contain 'acidic mire and supporting plant communities' which are uncommon throughout Eastern England due to agricultural change and afforestation (Bedfordshire County Council, 1998). The ponds adjoin two meadows of semi/unimproved acid grassland traversed by stream with flora uncommon in Bedfordshire, and an area of damp birch woodland. (Bedfordshire County Council, 1998). Assessment of the SSSI in 2011 found the condition of the site to be 'unfavourable recovering', an improvement upon the 'unfavourable no change' condition attributed the prior year (Natural England, 2010; Natural England, 2011). A management plan for the SSSI located in the Forestry Plan aims to 'maintain and enhance' the site by managing the hydrology, controlling invasive plants and trees, and extending nearby heathland (Bedford Estate, 2003: 121-123). This work is however, carried out by the Greensand Trust conservation charity with no sponsorship from the landowner (Ecologist, 2009).

Plate 7:19: Wavendon Heath Ponds SSSI, New Wavendon Heath

That portion of the study site which falls within the county of Bedfordshire is listed as a County Wildlife Site (Mid Bedfordshire Council, 2000), and that within the county of Buckinghamshire is a listed Biological Notification Site (BNS). These terms are broadly concurrent, and refer to "...areas of land that are rich in wildlife such as a tract of heath, a meadow, a copse or a village pond....and are an essential part of creating a better connected landscape" (The Wildlife Trust, 2006). The location of the site close to Stockgrove Country Park and Rushmere Park (two GST managed, mixed-habitat sites with high ecological value); Palmers Wood and Kings and Bakers Woods and Heaths (two SSSIs); and Buttermilk Wood (County Ecologist, 2007) give Aspley Woods relevance as part of an *ecological network*. The BNS designation is however, being replaced nationally by the term 'Local Wildlife Site' (LWS) (personal correspondence Countryside access staff member, 2009). The proposed change requires permission from the landowner, and Bedford Estate has reportedly declined the opportunity for redesignation (personal communication County Ecologist, 2010). Whilst Local Wildlife Sites are not protected by legislation, they are recognised as having a 'fundamental role' to play in meeting biodiversity targets (Wildlife Trusts, 2008), and are thus considered in development plans (via Planning Policy Statement Nine). Subsequently designation may affect any land-use change applications the landowner may make.

Landowners rarely receive financial benefit from having a Local Wildlife Sites on their holding (Greensand Trust, 2002), meaning that a degree of altruism is often to relied on to motivate the management of such areas (Wildlife Trusts, 2008).

Biodiversity Action Plans describe "...the biological resources of the UK and provide detailed plans for conservation of these resources, at national and devolved levels" (Joint Nature Conservation Committee, 2010). In addition, the Bedfordshire and Luton Biodiversity Action Plan aims to aid recovery for some priority habitats which are found at the study site; namely lowland heathland, lowland mixed deciduous woodland, lowland acid grassland and ponds (Bedslife (a), (b), (c), (d)); (Plate 7:20). Additionally, a threatened species covered by a specific action plan was sighted at Mermaid's Pool in 1989 (Appendix12.3A.7), the Great Crested Newt (Bedfordshire and Luton Biodiversity and Monitoring Centre, 2010; Forestry Commission 2010 ref c).

Plate 7:20: Mixed habitats of the study site (coniferous woodland, deciduous woodland, heathland, wet flushes), Aspley Woods and Heaths

Some BAP targets relate directly to the site, such as the preparation of a management plan for Old and New Wavendon Heaths by 2009, and the aim to maintain and improve Wavendon Heath Ponds and Meadows to bring them into favourable condition by 2020 (Bedslife (b), 2008). These are due to be executed by the Greensand Trust. Generally however, within Bedfordshire, BAP targets are being met. Dry acid grassland is stated as being a rare habitat, but the target for restoration and creation has been

met and/or exceeded. The coordinators are 'cautiously optimistic' about meeting future maintenance targets, as long as funding for resources continues (Bedslife (b), 2010: 2). Targets for mixed deciduous woodland restoration and creation are being fulfilled through the Forest of Marston Vale development; although there is not currently enough data to evaluate future maintenance targets. All plans for heathland are being met or exceeded, largely via the RSPB reserves in Sandy Heath Quarry and The Lodge (Bedslife (b), 2010: 3). However, the biodiversity important of the Wavendon Heaths is recognised due to the *"… little springs which flow through boggy area and end up in the SSSI, the patches of heather and bilberry… (and) the occasional occurrence of relatively rare, in a national sense, birds, like nightjar… and in the past, wood warblers*" (County Ecologist, 2007).

Pond habitats are however of more concern. A 2007 survey showed that 50% of old ponds were disappearing through habitat succession and other factors (Bedslife (a), 2010), and there is not enough current data to assert targets for this habitat type. BAP objectives relating to ponds aim to "…maintain and expand the number and geographical extent of high quality ponds in Bedfordshire and Luton (Bedslife (d), 2008: 4). Within the study site, there are two ponds (and a potential third) which fit the BAP criteria for certification as 'priority ponds'. Wavendon Heath Ponds (SSSI) is 'category 5', i.e. an 'other important pond', as it comprises a pond system in an acid environment which has plants which are rare in the geographical context (personal communication County Ecologist, 2010). A further 'wet flush' located to the west of the Fuller's Earth Cottage may also fit into this category (Ecologist, 2009). Mermaids Pond (Plate 7:21) is 'category 2', i.e. a "pond with species of high conservation importance". This is due to the presence of a Great-Crested Newt sighted in 1989 (Bedfordshire and Luton Biodiversity Recording and Monitoring Centre, 2010), a European Protected Species also protected under the Wildlife and Countryside Act (Schedule 5).

Plate 7:21: Mermaid's Pool, Aspley Woods

The pond, also known as 'Mermaid's Pool', was (historically) a 'popular place' for botanists, but did not receive SSSI designation due to the 'interest' being lost as a result of quarrying and forestry practices (County Ecologist, 2007). In light of this, the direct importance of the study site towards meeting BAP *Pond* habitat targets is potentially very high. The heathland, dry acid grassland and mixed deciduous woodland habitats at the site appear to be less important for BAP targets. This does not detract from the value as a network or its intrinsic ecological value, however, rising concerns of conservation have led to the development of policy, to be included in planning documents at a regional level. Since the revocation of plans however, the new Government's orientation indicates that it regards the environment as a crucial component of economic growth, whilst the departmental priority is to 'strengthen the economy and tackle the deficit' through devolved decision making (Defra, 2010:3). Since this, the local authority (Central Bedfordshire) proposed at its meeting of 2nd November 2010 to withdraw funding for the Biodiversity Partnership Co-ordinator post in order to make 'service efficiency savings' (personal communication Heather Webb, 08.11.10). This role is paramount to the organisation and implementation of Biodiversity Action Plans for the area, and alternative funding has been sought from Natural England and the Wildlife trust to enable this post to continue.

7.3 Synthesis

This chapter has been concerned with the space which provides a setting for cultural services to arise. It explores this space in the context of wider natural and social processes, taking a diachronic (historic) and synchronic (wider-current) perspective based on a desk-study and expert-interviews. It reviewed the geomorphic development of the region, and the socio-historic development which has influenced current day topography and land cover at the site. It has explored on-going issues such as demographic change, land use planning, forest management, and ecological conservation which situate the site in a particular context. This contextualisation is observed to affect cultural services in a number of ways.

Aspley Woods and Heaths (in its current state) embodies a synchronous eco-social development which influences the manifestation of modern-day cultural services. Ancient geomorphic processes have created a bedrock geology which directly influences current perceptions of certain aspects of the site, such as topography, elevation and naturally occurring land cover. Historic natural processes have combined with historic social processes to initiate land-cover and land-use trends which persist to the current day. Fuller's earth deposits and sand have been quarried at the site for over 900 years, an activity which has profoundly altered the surface of the landscape as experienced today. The sandy acid soil type in combination with land ownership changes in the 18th century led to the planting of woodland for commercial forestry which still persists. The ensuing topography, soil type and land cover have inspired *collective* cultural services activities (e.g. SSSI designation, Landscape Character Assessment and the setting of parish boundaries), and were identified as salient impressions in *individual* visitor experiences of site (Figure 7:3).

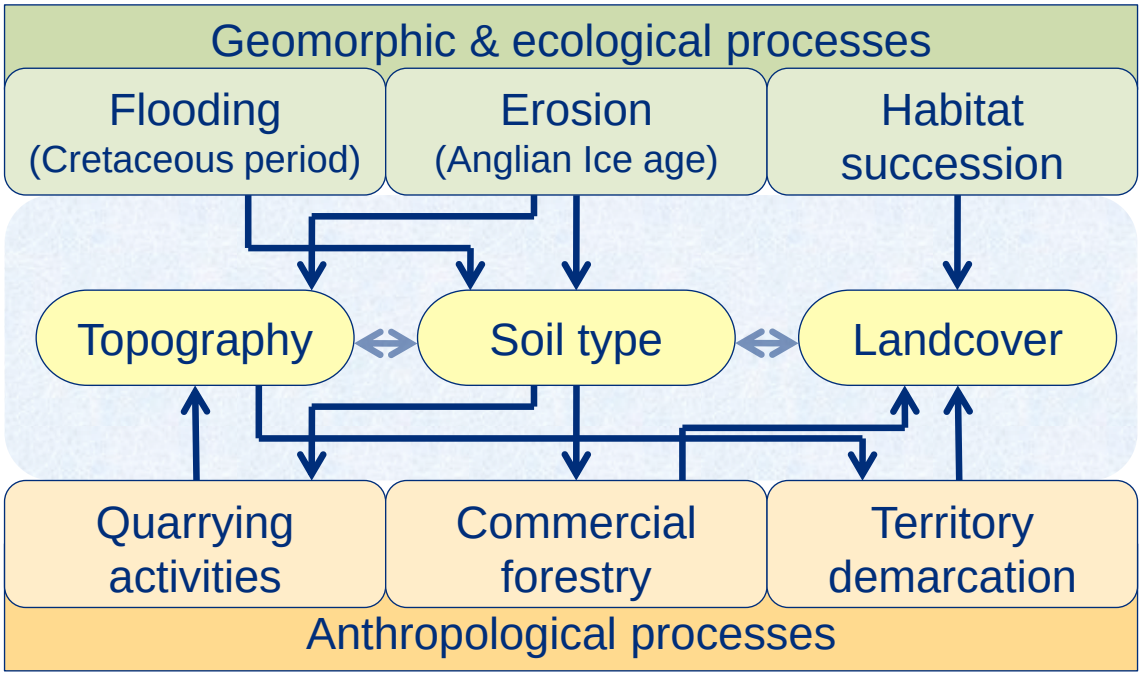

Figure 7:3: Diachronic processes which have led to physical features relevant to cultural services of the study site

Cultural services imparted by the site exist as shared meanings, embedded in the structure of concurrently developing local settlements. Shared meanings include the heath as common land, the heath as a means of survival, and the heath and woods as a health resort. Whilst these collective sentiments are likely to be most important for descendants of those who lived in the area at the accorded time, their subliminal relevance is embedded in the socio-economic structure of the local villages. Local settlements, institutions, and roads have been named in relation to historic land cover, and woodland trades have become part of the fabric of the local economy. The influence of the historic reputation of the 'spa' (and building of large properties in the heath area) continues to affects the current local housing market, whilst the historic transformative effects of selling 'squatted' land (and subsequent development of local businesses) is implicit to local businesses today. As such, all inhabitants are exposed to the meanings of the wood through their everyday lives.

Furthermore, the current cultural services of Aspley Woods and Heaths continue to be influenced by the eco-social context of the site. The site is managed as a commercial forest which is part grant funded by the Forestry Commission, and thus criteria set by this body are influential in the land cover of the site perceived by visitors. The site contains habitats perceived to be nationally scarce which are included in BAP plans implemented at a county level, and areas designated SSSI and SAM which are protected by European and English law respectively. It has been described as urban

fringe woodland through its proximity to extensive urban development initiated by the previous government, and is a nationally known mountain biking site. It has been affected by political change which has influenced expertise and funding related to county-managed natural resources. As such, the management of land-use and land cover within the setting is closely linked to wider social and environmental processes, which sustain the site in a state of dynamic contextual tension, and are thus intrinsic to the setting experienced.

It is however observed that the cultural services of Aspley Woods and Heaths are characterised by elements which resist human influence. Some aspects of the site have come into existence independently, without the influence of people. Geomorphic processes such as flooding, depositing, and erosion in the Cretaceous period and Anglian Ice Age have directly influenced the topography and soil type at this study-site; and bedrock is a major factor in habitat succession leading to land-cover (particularly understory). Additionally, the site (as commercial forest) is buffered from the faster paced elements of socio-economic change by the slow growing nature of the tree stock. As such, despite the agroforestry capabilities of humankind, and potential for large-scale earthworks, settings such as this study site are marked by their *resistance* to human influence. This is exemplified by the non-negotiable aspects of ecological and geomorphic development which repel technological intervention yet play a large part in cultural services setting experienced.

The position presented by published accounts of cultural services indicates that the phenomena is the result of an interaction process between ecosystems and people. It is conceptually established to be a *current* process of interaction, which is related to a *specific* environmental setting. Subsequently it is presented as a geospatial and temporal 'snapshot'; a service which is definable in time and space. This chapter has shown that environmental settings (such as the study site) are subject to a host of influences which have occurred *outside* the current timeframe and setting. The geospatial and temporal setting for cultural services expression is thus perceived to be fluid, amorphous and contextually-driven, and does not lend itself to obvious demarcation in time and space.

This review of ecosystem service literature shows texts are generally based on the supposition that non-ecological human systems are separable from other ecosystem processes. However, this chapter has shown that the cumulative effects of human actions upon land render it impossible to clearly differentiate between the development of local social systems and local environments over time. These 'systems' have developed in tandem, and utilise institutional structures such as planning, policy, designation, education, research, assessment and monitoring to

effect land-based change. These institutional activities are representative of *collective* cultural services, which directly influence and guide *physical* processes which are currently embodied by other components of the ecosystem service construct, such as the 'provisioning' and 'habitat' services. This finding is supported in published material which states that cultural services "…values and benefits are so divergent from each other and so overlapping with the values associated with other 'master' categories of services (provisioning, regulating, supporting) (MA, 2005) that we can imagine no clean way to group these services without also including services that have been considered elsewhere" (Chan *et al*, 2012: 14). As such, it is concluded to be difficult to extricate the workings of cultural services from those of the other services.

Since formal ecosystem service assessments require the identification of variables (in order to set accurate study boundaries), and given the range of influences which affect environmental settings, it is observed that the most appropriate means of assessment for cultural services are in-depth, site-specific studies. This chapter highlights that cultural services are likely to be influenced by changes beyond the traditional geospatial and temporal study area, thus indicating the need for diachronic and synchronic methodological perspectives. This finding reinforces the overall position taken by this thesis, that cultural services are a constructivist phenomenon, which subsequently require research methods able to accommodate complexity and uniqueness".

7.4 Chapter summary

Features which were salient in individual visitor experiences of the site (topography, soil type, land cover) resulted from a gradual synchronous eco-social development, which incorporated geomorphic processes, historic social processes and land-use trends.

The concurrent development of urban settlements and local natural resources indicates that cultural services are embedded in the socio-economic structure of local settlements, and thus expose inhabitants to the shared meanings of the wood in their everyday lives.

Site land-use is closely linked to wider processes which sustain the site in a state of dynamic contextual tension, and as such, cultural services-relevant features, experiences and activities are influenced by ecological, social and economic settings.

The site was found to be characterised by elements which resisted human influence, typified by non-negotiable aspects of ecological and geomorphic development which developed spontaneously without technological intervention.

This site was subject to a host of influences which occurred *outside* the current timeframe and setting, thus the geospatial and temporal setting for cultural services expression was perceived to be fluid, contextually-driven, and difficult to demarcate.

The contemporaneous development of natural resources and settlements means that institutional structures have influenced ecological processes currently represented by other ecosystem services; subsequently extricating the workings of cultural services from those of the other services is challenging.

8 Cultural service as resource regime

It was shown in Chapter 6 that interactions between people and the semi-natural study site were required for cultural services to arise. Although it is acknowledged that some forms of interaction may be achieved at a distance (i.e. *visually* through the view of a landscape) the case study centred upon cultural services phenomena associated with *immersion* in the study-site. This necessitates access, and the right of the public to gain access and to engage in activities is governed by property rights (and accompanying rules structures) known as 'resource regimes' (Vatn, 2005). The aim of this chapter is to summarise the historic and current resource regimes associated with the study site, and to interpret these in relation to current cultural services provision. Material informing this chapter has been taken from expert interviews, as detailed in Section 0.

Whilst the resource regimes in deployment at the site have changed over time, currently two distinct property rights structures are in place. The majority of the land is owned by Bedford Estate, and the public are granted access through an agreement with two local councils (Central Bedfordshire and Milton Keynes) called the 'Aspley and Wavendon Woods Access Agreement'. The second resource regime which grants open access to the public relates to the area known as Aspley Heath Sandpit. This is believed to be owned by Aspley Heath Parish Council, and is managed as a charity called the 'Sandpit Recreation Ground Charity'.

8.1 Historic use and ownership rights

The original Woburn Estate "…*gifted by Henry VIII*" in 1547 (Landowner, 2010) did not include the study site; but comprised Woburn Abbey and land surrounding the village of Woburn (Bedford Estate Archives ref b). In the early 1700s, the study site existed under the feudal system, as a combination of private agricultural property and open access 'commons'. Aspley Woods belonged to the Manor of Aspley Guise and was purchased by the Duke of Bedford in 1717 (Bedford Estate Archives ref c). Non-specific woodland in Bow Brickhill and Wavendon was purchased between 1792 and 1909 (personal communication Ann Mitchell, 13.10.11). Old and New Wavendon Heaths were common land until the parliamentary enclosure of Wavendon Parish (1791). After enclosure, the heathlands were divided between several landowners, but began to be acquired by Bedford Estate through gradual purchasing and exchanging activities through the late 1700s to early 1800s (Bedford Estate Archives ref d). Three areas of Wavendon Heath which had resisted enclosure were also acquired by the estate during this period, these being the squatter settlements at

Longslade Lane and Leighton Hollow, (Bedford Estate Archives ref e) and the 'Poor's Allotment' (Bedford Estate Archives ref f). This land was obtained by the Bedford Estate sometime before the creation of the 1840 Tithe Map Award for Wavendon (Historic Environmental Record, 1840). Public access to the site continued, as described in Williams's book on Aspley Guise, "…it is worthy of remark that, by the liberality of his Grace the Duke of Bedford, these beautiful groves are open either to pedestrian or Equestrian visitors" (Williams, 1858: 10). However, towards the end of the century, public access became problematic.

Aspley Heath Parish Council meeting minutes from 1898 describe the placing of blockades in entrances to the wood, and across paths (in the Wavendon portion of the study site) by Bedford Estate representatives (Aspley Heath Parish Council Archives (a), 1899). The blockades were said to have been installed by the estate to prevent the destruction of plants and shrubs for purposes of sale (Aspley Heath Parish Council Archives (b), 1899). When approached, the estate questioned the existence of certain Public Rights of Way (PROW) and insisted that long-term use of paths was not sufficient to designate these as such; stating that PROW needed to be defined as 'going from one definite place to another, and evidence of original right of way' (Aspley Heath Parish Council Archives, 1899). Negotiations took place between 1899 and 1902 to define the PROW, and included the creation of a dedicated paths map in 1902 (Aspley Heath Parish Council Archives, 1901). The parties were not able to agree however, and the estate amicably requested the paths be 'ascertained and defined' in court (Aspley Heath Parish Council Archives, 1902). A High Court order of 4th August 1906 subsequently defined the PROW network and stated that Bedford Estate representatives "… be perpetually restrained from obstructing any of the said roads or paths… and from preventing or interfering with the free use thereof by the public as aforesaid".

A copy of the map which accompanied this judgement in the High Court of Justice (Figure 8:1) shows carriage roads, bridle paths, footpaths, parish boundaries and the boundary of the Duke of Bedford's land and positions of gates and posts across roads (Bedford Estate Archives ref a). Although the court order related to "the said roads or paths", extensive use *beyond* the pubic rights of way network may have influenced the development of the Access Agreement, since"… *my understanding is that the public on foot, horse and cycle have been accessing the wood (possibly trespassing) for decades if not longer. This may have been the trigger for the Access Agreement between the landowner and councils, so that this access would become legal*" (* Ranger, 2009).

8.2 Aspley and Wavendon Woods Access Agreement

An Access Agreement exists between the owners of the study-site (Bedford Estate) and two local authorities (Central Bedfordshire Unitary Authority and Milton Keynes Borough Council). The agreement gives members of the public legal access on foot to the entire 344 ha site, and additional access for those on horseback and cycle to paths which extend beyond the PROW network. This type of agreement was created using Section 60 of the National Parks and Access to the Countryside Act 1949 (amended by later Local Government Acts), which makes it possible for a planning authority to "… enter into an Access Agreement with any person having an interest in land being open country in the area of the Authority" (Access Agreement, 2012: 1). Aspley and Wavendon Woods is particularly notable, as it is thought to be the largest Access Agreement site in Lowland England (Central Bedfordshire Council, 2010; Property Consultant, 2010).

The initial access agreement commenced in 1990 and expired in December 2010, and was replaced by a temporary agreement (see Table 8:1), which remained in force until the new agreement took effect on the 1st April 2012 (personal communication Countryside access staff member, 2012). The agreement is made possible through a partnership between the landowning estate (referred to as the Grantor), the local councils (in collaboration with parish councils), and the Greensand Trust charity. This partnership is considered to be of mutual benefit to the involved parties, and is noted to have "*…evolved… with support from the council, towards the cost of providing rangers, to manage and help support (public use). In exchange the estate offered additional right of access through the woodland areas for mountain bikes, horses and domestic people. So there are now a large number of permissive rights of way in addition to public rights of way as a result of the Access Agreement*" (Property Consultant, 2010).

The agreement gives the general public extended access to the site over that provided by the PROW network, as shown on an Access Agreement map (Figure 8:4). Whilst the councils are ultimately responsible for the funding and management of this access (governed by byelaws summarised in Table 2) the Greensand Trust maintains responsibility for day to day management of the site, including the enforcement of byelaws, and the maintenance of routes and signage. There is an annual meeting between representatives from Bedfordshire and Milton Keynes councils, the Greensand Trust, Bedford Estates land agents, Forestry Manager and the estate manager, and a User Forum which includes the aforementioned organisations. the parish council, horse rider cyclists and walkers.

Table 8:1: Summary of access agreements (Access Agreement, 1990; 2012)

	First Access Agreement (20 yrs)		**Second Access Agreement (10 yrs)**
Duration	20th August 1990- 30th June 2010 (extended to 30.09.10, 31.12.10 and again to March 2012)		1st April 2012- 1st April 2022
Access land 'short name' (full areas)	'Aspley and Wavendon Woods' (Aspley Woods, New Wavendon Heath, Old Wavendon Heath, Browns Wood, Bow Brickhill Park, and Wavendon Wood inclusive)		
Parties	Trustees of the Bedford Estates ('the Grantors'); Bedfordshire County Council and Milton Keynes Borough Council ('the councils')		
Land size/ type	800 acres/ 344 ha of mixed and coniferous woodlands		
Funding for access (per annum)	Pre 2003/4: Countryside Commission £5,800, Milton Keynes Council £8,000, Beds County Council £22,500, Permits £3000	Post 2003/4:[a] Central Beds Council £18,000 Milton Keynes Council £15,000 Permits £7,000	Post 2010: [b] Central Beds Council £23,000 Milton Keynes Council £16,000 Permits (projected) £11,000
Total funding	£39,300	£33,000	£50,000 [b]
Ranger service provision	Bedfordshire County Council	Outsourced to Greensand Trust	Outsourced to Greensand Trust

[a] Period relevant to study. [b] information from personal communication with Countryside access staff member

Activities which are permitted on access land centre focus upon 'open air recreation', and include, "…walking, hiking, running, picnicking, dog walking, riding, cycling and mountain biking and such other activities as the Grantor may approve" (Access Agreement, 2012: 3). This leads to the site being "*heavily used… it's good riding for horse riders, it's good walking, it's good cycling, it's good for general leisure and enjoyment use. It's used by the locals, people from Milton Keynes and Bedford, and from wider afield. Cyclists in particular are travelling from all over the country, making use of the Bedford to Bletchley railway link*" (* Countryside access staff member, 2009). The right to engage in these activities is however, subject to restrictions and provisions contained within the Access Agreement, and (in the case of horse riding and cycling) requires a permit, and the additional intermittent approval ('acting reasonably') of the Grantor (i.e. Bedford Estates). Both the 1990 and 2012

agreements contain clauses which allow for their termination, giving notice in writing of either 12 months, or with 'immediate effect' "…in the event of any breach of any of the undertaking on their part in this agreement" (Access Agreement, 2012: 3).

8.2.1 Obligations of parties

Within the terms of the Access Agreement, the councils are responsible for i) the provision of a warden service for the access land, ii) the maintenance of access routes, and iii) the provision and maintenance of access related notices, signage and infrastructure (i.e. stiles, gates, barriers, waymark posts, signs, signposts, bridges and 'other structures'). In addition, the councils are also obliged to notify the Grantor of any issues relating to safe passage on access routes, to make 'reasonable endeavours' to restrict cycle use to permitted routes, and to use permit revenue only for the management of access land.

The agreement places three main responsibilities on the Grantor in relation to public access; the daily opening and closing of Longslade Lane car park (2012 agreement only), the removal of dead or dying trees on/adjacent to access routes, and the obtaining of written notices (from the councils) for 'excepted' land/ fenced off areas (to enable actions which ensure continuous public access). Other obligations take the form of *restrictions*; i.e. to not carry out work which would cause a 'substantial reduction' of access, to not destroy, remove or alter any means of access, and to not permit any misleading notice or dangerous animal which "…is likely to deter the public from exercising their right of access" (Access Agreement, 2012: 4). Failure to comply with these responsibilities entitles the councils to take rectification works and recover the costs of doing so from the Grantor. In addition to these obligations, the agreement also adds two further clauses in regards to *liability.* It states the councils have no liability in relation to damage or injury from fire or diseased trees on access land, and the Grantor (and their insurers) are not liable for loss or damage to members of the public not on statutory rights of way, accept for incidents resulting from negligent acts for which it is legally liable (Access Agreement, 2012: 8-9).

8.2.2 Byelaws

Recreational activities permitted by the Access Agreement are restricted in order to control public behaviour in the access land. There are four general restrictions, namely the prohibition of i) driving/riding motorised vehicles, ii) entering/remaining upon closed sections of land, iii) obstruction of persons with 'proper authority', and iv) 'intentional/careless/negligent' 'uprooting/damaging/ destruction/removal' of 'trees/ plants/wild flowers' (Access Agreement, 2012: 10). In addition to these restrictions

are a series of byelaws (Table 8:2) accompanied by infrastructure (e.g. signs) (Plate 8:1), designed to afford and control public passage (Access Agreement, 2012: 6).

Table 8:2: Summary of byelaws relating to access agreement (Access Agreement, 2012:)

Subject	**Rule**
People	No wilful disturbance/ interruption/ annoyance of any persons
Music	No musical performances, entertainment, amplifiers or loud/ continuous/ repeated noise
Waterways	No pollution of waterways or obstruction of drains/ watercourses. No fishing, bathing or sailing
Animals	No killing except with lawful right of privilege. No grazing without council agreement. Dogs only under proper control. No riding of horses, donkeys or mules except areas indicated.
Infrastructure (fences, signs etc.)	No climbing of or careless wilful or negligent soiling or defiling of walls fences, posts, barriers etc. No placing of adverts or notices.
Misc. prohibited items	No petrol-engined model crafts, no fires, no tents or erected structures, no discharging of firearms or missiles, no selling/hiring/offering of any commodities

Plate 8:1: Signage at Longslade car park, New Wavendon Heath

8.2.3 Path network maps

Four maps have been analysed which relate to the study site, primarily in relation to paths (Table 8:3).

Table 8:3: Maps relating to the study site path network

Fig.	Date	Title of area	Item(s) included	Author/Source
1	1902	Aspley Heath	Public Rights of Way; other paths; land cover; dwellings; place names; surrounding settlements and fields	O.S.; Aspley Heath Parish Council; Bedford Estate Archives
2	1990	Aspley & Wavendon Woods	Public Rights of Way; other paths; land cover; dwellings; place names; settlements and fields; boundaries	O.S.; Bedfordshire County Council
3	2003	Aspley Woods	Public Rights of Way; other paths (selected); place names; surrounding settlements; boundaries of access land; designated areas; ponds; car-parks	The Greensand Trust
4	2011	Aspley & Wavendon Woods	Public Rights of Way; other paths (selected); land cover; dwellings; place names; surrounding settlements and fields; boundaries of access land; hydrology; golf greens; car-parks	O.S.; Bidwells

The 1902 Ordnance Survey map (Figure 8:1) was annotated by Aspley Heath Parish Council in relation to the High Court action which designated public rights of way in Aspley Heath and Wavendon Parish. The 1990 Ordnance Survey map was annotated by Bedfordshire County Council (Figure 8:2) to show the entire path network at the site. This map accompanied both the 1990 and 2012 Access Agreement documents sanctioned by Bedford Estate. The 2003 map (Figure 8:3) presents a permitted path network as agreed by Access Agreement partnership organisations, and is currently available on the Greensand Trust website. This 'permitted path' map is currently on display at the study site. The 2011 map (Figure 8:4) was created by Bidwells, Property Consultants for the Bedford Estate, in relation to Access Agreement negotiations.

Although the written Access Agreement does not specify which paths cyclists and horse riders should use, permissive bike and horse routes are indicated on the map in Figure 8.3 (which is present as a sign at the site) and in Figure 8.4. Permitted bike and horse routes are shown by onsite signage, and since the Access Agreement textual document does not specify that walkers keep to the path network, all Access

Agreement land is potentially accessible for those on foot. (personal communication Countryside access staff member, 20.10.11).

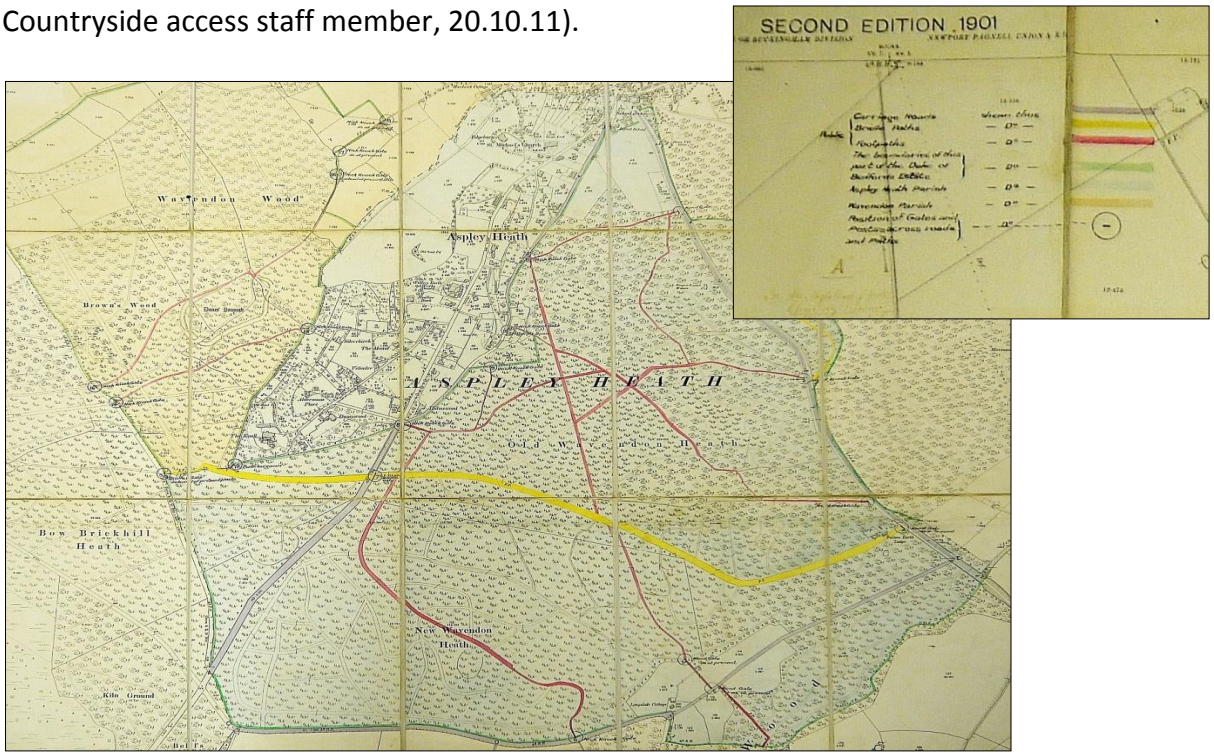

Figure 8:1: Map of Aspley and Wavendon Woods Public Rights of Way (Aspley Heath Parish Council, 1902; Bedford Estate, 1902)

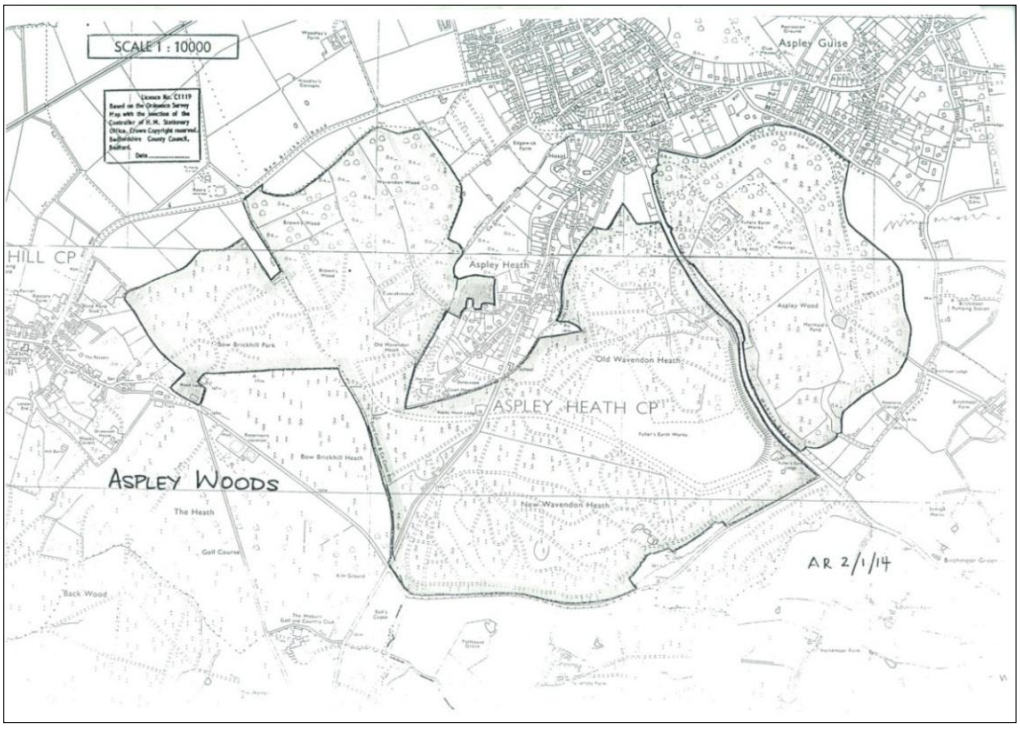

Figure 8:2: Map of Aspley and Wavendon Woods Access Agreement land (Bedfordshire County Council, 1990)

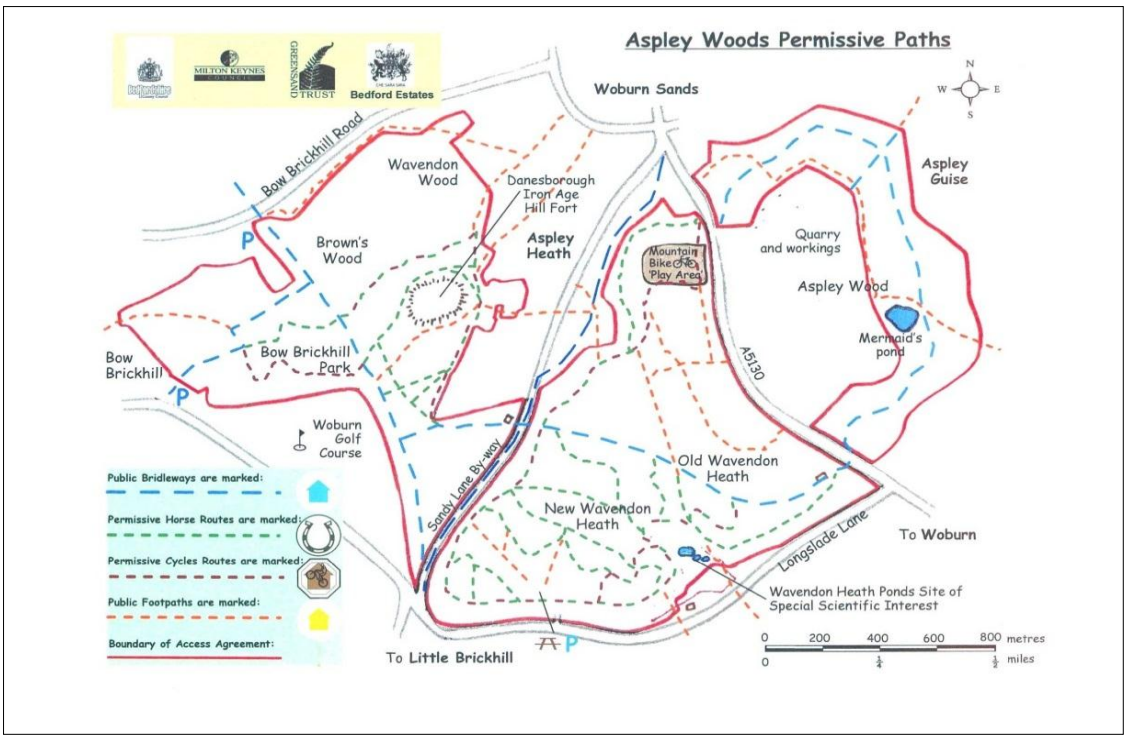

Figure 8:3: Map of Aspley Woods Permissive Paths (Greensand Trust, 2003)

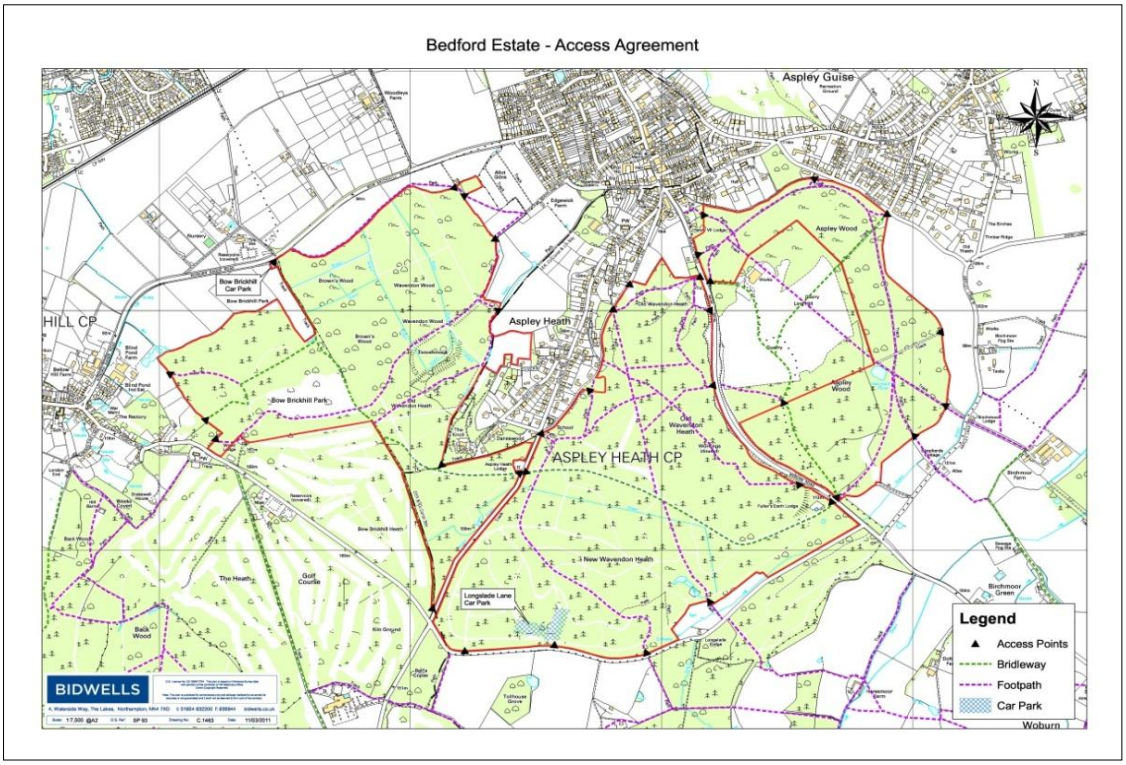

Figure 8:4: Map of Aspley and Wavendon Woods Access Agreement land (Bidwells, 2011)

A number of ambiguities are presented through consideration of these maps. Whilst the coloured routes on Figure 8:1 and Figure 8:4 should be identical, the 2011 map contains an extra public footpath (New Wavendon Heath, E-W; marked as PROW) which is missing from the 1902 map. The network of *informal paths* also varies between maps. The 1990 map shows the extent of the network over the entire site (except for restored quarry land in Aspley Woods), and may be related to the aim of the councils to maximise public access. The 2003 map (Figure 8:3) shows a similar network, but does not include paths in Browns Wood or Wavendon Woods. These woods are considered to have high ecological value, the conservation of which is aligned to organisational aims of the Greensand Trust. The 2011 map (Figure 8:4) *includes* paths in Browns Wood and Wavendon Woods, and a PROW through the restored land in Aspley Woods; but *omits* almost the entire path network in New Wavendon Heath in comparison to the 1990 and 2003 maps. This area is commonly used by bikers, a health and safety concern for the landowning estate. This arguably shows that the maps represent constructions of the access agreement land which reflect the interests of map authors, and influence public behaviour by emphasising or obscuring paths and features, thus assisting or deterring public use in certain areas.

8.2.4 Breaches of the Agreement

Throughout the study many byelaw breaches were observed, such as motocross bike riding (personal communication PC Coles, Ampthill Police, 2007), destruction of signs (Forestry Manager, 2010), camping (Ranger, 2009), and vehicle burning (Plate 8:2).

Plate 8:2: Artistically positioned burned motorbike, Old Wavendon Heath

Music has been a problem both through "…*noisy parties*" (Ranger, 2009), and so-called 'raves' (see Section 10.4.3). It has been observed that "loud music and shouting etc. contravenes byelaws and are therefore illegal"(anonymous Greensand Trust source, 2012). There has been a history of raves taking place at the site (Country House documentary, 11.08.00; Fantazia website, 2011), and a further rave took place at the study site during the course of this research. Held in the old quarry building in Aspley Woods on 31st October 2009, the event was not stopped by police due to concerns over the safety of intoxicated youths leaving the site in the dark (BBC News, 2009). Instead, with the agreement of the landowner who attended the scene at 3 am (unidentified crane contractor, 2009) the rave was allowed to continue until 11 am the following morning, whereby ravers were issued with notices and left the site escorted by police and estate workers. Over the course of the event the police received three noise-related complaints from locals, but "…no problems reported with public order, violence or damage" (BBC News, 2009). However, a section of fence was removed by the ravers to obtain entry, and rubbish left behind included gas canisters, empty amyl nitrate vials ('poppers'), beer cans and bottles (site visit, 03.11.09) (Plate 8:3).

Plate 8:3: Quarry building the morning after rave, Aspley Woods

Following the event, the landowner ordered the roof be taken off the building to prevent future raves, purportedly saying 'they're not doing it in my barn' (landowner quoted by unidentified crane contractor, 2009). The local Conservative MP was

quoted in a broadsheet newspaper as saying there were "…3000 kids taking ecstasy with no water… no safety …no toilets…no facilities" (Irvine, 2009). A local newspaper (Milton Keynes Citizen, 2009) two days after the event reported that a "… young partygoer died after friends saw him take a cocktail of drugs and alcohol at an illegal rave on the Duke of Bedford's estate. Former grammar school boy Sam Rennie, described as 'an absolute legend' by his mates, was among 3,000 revellers celebrating Halloween night in a disused shed at Wavendon Heath near Woburn Abbey. After partying through Saturday night and part of last Sunday the unemployed 21-year-old returned to his Simpson flat on Monday and fell asleep. The next day a friend called and found him 'unresponsive' on his bed".

A further byelaw breach was identified in relation to the building of wooden structures for 'North Shore' style mountain biking. These structures (described in Chapter 6.2.2) have been a regular occurrence at the site, but are removed for health and safety reasons. Evidence of fire was seen frequently at the site, as multiple small BBQ scorch marks (on the ground), and burn marks on tree trunks from vehicle fires. Two large-scale areas of fire damage were also observed; one area approximately 30m southwest of the mountain bike jump site, and one area of approximately 1.2 hectares in Aspley Woods (Plate 8:4) the result of a fire on the evening of 14th July 2011 (site visit, 14.07.11; Bucks Fire, 2011).

Plate 8:4: Part of the 1.2 hectares of Aspley Woods destroyed by fire, 2011

Data collected through marginal participant observation suggested that there was widespread use of paths and tracks throughout the whole woodland. It could be argued that this was not a breach of the 1990 access agreement, since the wording of this document allowed for, "… *blanket public access to the whole woodland*" (Ranger, 2009), and it was subsequently observed that,"…the public were allowed to access the whole woodland – they weren't restricted to existing paths or excluded from certain areas" (personal communication Director of Development, 2012). Whereas the amended 2012 agreement requires the council make reasonable endeavours (via signs and rangers) to restrict *cycles* to the correct path network, pedestrian access continues to be, "…as stated in the original Access Agreement" (personal communication Countryside Manager, 2012), thus the precise access (formal/ informal paths or land in between) intended for public use hence remains ambiguous.

Further difficulties emerged in relation to car parking and entrance to the site. The 1990 agreement stated that only designated entrances and areas for vehicle parking were permitted, as shown on the map. However, only five entrances were marked on the plan (unclearly), and no car parks were shown. Two official car-parks at the periphery of the site (Bow Brickhill Park and Church Road, Bow Brickhill) were closed by the estate due to antisocial activities (site visits, 2007-2010; Ranger, 2009). It was explained that this decision was taken, "…with the agreement of the other parties… not a unilateral decision" (personal communication Director of Development, 2012), leaving Longslade Road car-park and Church Road in Aspley Heath as the only areas designated for car parking. Unsanctioned parking on the verge of Woburn Road became a significant issue in the negotiation of the 2012 agreement (discussed further below). The 2012 agreement plans shows 35 entrances and two car parks (Bidwells, 2011; Figure 8:4).

8.2.5 Issues of mutual concern

Health and safety, and litigation

The negotiation process for the renewal of the Access Agreement in 2010 highlighted a number of changes which had occurred over the duration of the initial agreement. Countryside Commission grant funding had ceased, local authority budgets for funding countryside access were cut, and health and safety requirements and insurance liabilities intensified leading to higher management costs for the site. Over the same period of time, visitor numbers had increased dramatically (following the expansion of Milton Keynes and the growing trend for biking) resulting in more work associated with maintenance and anti-social behaviour (the councils, 2009). These changes have

"…made it very difficult to manage access, both wardening and grounds maintenance works to paths, on the reduced resource available" (the councils, 2009: 1).

The increased risk of civil court litigation is a mutual concern for the organisations involved in the Access Agreement, as is a growing trend in the UK (Ministry for Justice, 2011. A chain of potential liability (originally expressed by the Ranger), was described as, "… if a cyclist were to injure a third party, that person could sue the cyclist. Should the cyclist not have sufficient funds nor have suitable insurance, the injured party could look to the Greensand Trust, councils and/or Bedford Estates for compensation as any one of these organisations could be deemed to have invited the cyclist to ride in the wood" (personal communication Director of Development, 2012). The Access Agreement is partially a response to this threat of litigation since *"… the bike park is slightly different in that it's all to do with public liability, and the estate do hide behind the council to ensure that the council are the front line so far as management, supervision and responsibility in the event of an accident*" (Property Consultant, 2010).

The threat of litigation was highlighted by mountain biking accidents at another site which led to the death of one biker, and permanently debilitating injuries for others involved. These accidents resulted in a negligence case against the site-owning Forestry Commission (Eversheds, 2011) and the calling of the Bedford Estate Forestry Manager and Greensand Trust ranger (for Aspley Woods) as expert witnesses due to the similarities in terrain and recreational activities occurring on the FC site and Aspley Woods and Heaths (personal communication Ranger, 2009). Whilst the case was retracted before reaching court, it "…*highlighted the issues about the requirement to actually monitor mountain bike activities on private land, and therefore the estate is very keen to make sure there is sufficient ranger support*" (Property Consultant, 2010).

At the study site, bikers and horse-riders are expected to buy a permit which includes £5 million of public liability insurance. The ranger is tasked to oversee that permits are held by riders, that signs detailing the permit scheme and routes are kept well maintained, and that regular risk assessment checks are made. Subsequently it is considered that "…should cyclists decide to ignore these signs, then we have taken all reasonable steps to ensure his/her safety in a potentially dangerous sport. As a result, his/her safety becomes the cyclist's own responsibility" (personal communication Director of Development, 2012). Although there have been, "*occasional accidents involving a variety of minor fractures and a couple of more serious incidents requiring an ambulance or even airlifts* " (* Ranger, 2009), as of April 2012, no compensation cases have been brought in relation to Aspley Woods.

A further health and safety issue highlighted through the renegotiation process related to car parking on the verge at the edge of Woburn Road. This was considered highly dangerous by the landowner, who observed that the "…*huge verge heading downhill towards Woburn Sands (which) is attempting to become some sort of illegal car park. (Well) what doesn't make sense is where health and safety fits in. How are you going to have you know, a major road with you know, a car park next to it, with people wandering around?*" (Landowner, 2010). The estate offered to construct earth mounds to prevent parking, but this was opposed by Aspley Heath Parish Council, who thought this would displace the problem to elsewhere in the village (the councils, 2009). The accepted solution has been to approve the redesigning of the nearby layby to accommodate 20-25 cars, work currently on going at the time of writing (March 2012). There are currently, "… no plans to charge (for the car park)" (personal communication Countryside access staff member, 2011), however it was noted that this situation may change in the future.

Funding

Whilst health and safety was a pressing matter for the Grantors, a principal concern for the councils has been funding. It had been estimated that, "…the revenue allocation needed to maintain a service which caters for demand and can respond to emergencies is £75,000 per annum (based on current visitor numbers). This includes the provision of 2 full-time ranger equivalents, 7 day a week coverage and a reasonable working revenue budget" (the councils, 2009: Section 7.4.2). Higher level changes to the conditions for government funding meant that the councils could only access grants for development and/or new works, and were compelled to design sites in such a way as to be self-financing (Greensand Trust, 2008*).* An 'Options Report' created by the councils proposed wood-sited facilities (e.g. catering, formal visitor facilities, or chargeable car parking), since *"...*experience on other sites has shown that effective establishment of income generating activities of the sort outlined offer sufficient profitability to generate additional revenue funding and genuine long term sustainability*"* (the councils, 2009: Section 5.4). Bedford Estate rejected the proposed development, as the site was perceived to present "…*peacefulness and nature number one, that is how I would put it. If you want facilities you can go to other places like a Country Park. What people enjoy is 'natural'"* (Landowner, 2010).

The renewal of the Access Agreement was postponed, instigating lobbying activities from mountain bikers. Subsequent grant funding was offered by an international mountain bike manufacturer (Trek Cycles), however, the estate opposed the introduction of this commercial entity into the agreement partnership. It was eventually agreed that a reduced service (costing £50,000 per annum) would be

adequate (Countryside access staff member, 2010). Both councils increased their contribution (see Table 8:1) the parties expect that the heightened publicity received through the negotiation process, coupled with an increased ranger presence will lead to higher income from permits. The new Access Agreement has been shortened to 10 years, to reflect rapid urban change in the area whilst still being long enough to secure local authority funding (Countryside access staff member, 2010).

8.2.6 Stakeholder tension

Observations during the course of the study highlighted that there are also tensions between the organisations involved in managing the Access Agreement. This was illustrated by requests to reword interview quotes used in the thesis to minimise potential sources of aggravation ahead of the negotiation of the 2012 Access Agreement. This section seeks to describe the key points of the analysis whilst respecting the sensitivity of the stakeholders' positions.

Tensions imposed by social processes

Some of the tensions related to perceived constraints associated with designation. This is illustrated by a proposal towards the end of the 1990s when "…the Greensand Trust had hoped to sign an agreement with the estate to manage the site as heathland and wet flush area" (Director of Development, 2012). He continues "uncertainties over the then imminent CROW regulations meant that this did not happen". Whilst this may be part of the reason, a GST representative also suggested that "…*the estate are concerned that management of areas for wildlife could lead to designation of SSSI's etc. and what they perceive as a loss of control over their land*" (*Ecologist, 2009). This perspective is largely confirmed by estate representatives. In reference to the aforementioned wet flush, the estate had understood that the GST, "…*wanted to clear the commercial forestry area to create natural heath land",* which*, "…would have created a new potential SSSI, which would prevent any future commercial forestry*" (Property Consultant, 2010). Designations such as SSSI were perceived by the estate as being limiting and disadvantageous, as "…*there is always a continual ratchet effect. You put one piece of ground over to one type of management and that's it. It's a monument and you can't touch it, you can't go near it, you can't do anything*" (Forestry Manager, 2010).

This tension is recognised by GST, who recognise that the process of designation, "…*affects their forestry operations. For example, it's not just managing the SSSI, it's the ability to carry out other works in adjacent woodlands that may affect the site and which require a bureaucratic, constraining overhead*" (*Ranger, 2009). This tension highlights the balance to be struck between using designations to protect important

habitats versus the impact that this has on discouraging landowners for engaging in non-enforceable conservation activities.

Tension between change and conservation

In general the GST's organisational position appreciates the conservation work of the Bedford Estate, asserting that, "…the Greensand Ridge has remained a stunning landscape in no small part because of the historic and on-going management of these estates. Trust objectives cover historic and built environment, culture and landscape, so the landscape conservation achieved by the estates is a positive" (Director of Development, 2012). The estate also has a keen interest in conservation work with non-native species. The estate owned Woburn Safari Park is part of the European Endangered Species Programme (EEP), and is involved in initiatives such as the European Studbook (ESB), the 'Global Captive Action Plan' for rhinos (Woburn Estate (c), 2011), and the fundraising campaigns of European Association of Zoos and Aquariums (Woburn Estate (d), 2011). Woburn Deer Park also provides homes for endangered species such as the Chinese Water Deer and Pere David's Deer (Woburn Estate (b), 2011).

However for local native species, as illustrated by the Wavendon SSSI, there appears to be a tension between the estate and GST in some of the details of 'conservation' activities. The general stance of the estate seems to be that conservation is often best served by the on-going commercial management of the land rather than trying to hold an area in a given state. This is illustrated by comments relating to the condition of the site of special scientific interest. For example the Forestry Manager (2009) suggested that, prior to designation of the SSSI, "…*there was an established form of management in those ponds which then became a bone of contention. That management was removed and basically from my point of view the whole thing has deteriorated*". According to the estate, the designation and conservation of habitats can lead to a form of 'time capsuling', which prevented habitat succession. Time capsuling was perceived to be an inappropriate way to manage land, since "…*if you do it just for that* (habitat conservation*) then you don't get any natural evolution, because that area becomes totally focused on one thing. Then whatever natural thing would happen to it doesn't, because all the natural stuff is removed for this one thing*" (Landowner, 2010).

The tension between conservation and dynamic nature of management was also highlighted by the Property Consultant (2010), who commented that forestry workers were engaged in educating the public about "…the finite life of trees". In the words of the Forestry Manager (2010), this was to avoid situations such as "…*we have had*

incidents where people have rung up about felled trees, and they have complained it has lowered the value of their property. People are buying houses with the tree being there forever" (Forestry Manager, 2010). Estate forestry practices are stated to encourage 'natural regeneration' (Forestry Manager, 2009), and it was explained that "*…the estate has been managing for an awfully long time, and are keen to keep the variety*" (Property Consultant, 2010). This was summed up by the landowner, who remarked that "*…there's more than one view of perfection*" (Landowner, 2010).

In contrast to the above, the 'Framework for Action' which guides the work of the Greensand Trust (Table 8.4) places substantial emphasis on "conserving...the management of key wildlife, landscape and heritage", including the "historic landscape" and "the need for.... protection".

Table 8:4: Organisational aims of the Greensand Trust

To conserve and enhance the management of key wildlife, landscape and heritage features in the Trust area
To develop creative landscape and habitat restoration projects to link fragmented habitats and to contribute to the general conservation of the landscape and biodiversity
To increase awareness of wildlife, archaeology and the historic landscape amongst landowners and the general public and promote the need for their protection and management
To work in partnership with local communities, local authorities, landowners and industry to identify priorities, and develop and implement environmental improvement projects
To develop, improve and promote the public rights of way and public open space networks

GST work is essentially focused on the Greensand Ridge area, and "…includes promoting and carrying out conservation management of important greensand habitats and species; promoting the local distinctiveness of the Greensand Ridge" (Greensand Trust, 2012). This is hence a localised perspective which concentrates on native species. The thrust of SSSI regulations is also to maintain a particular site in a stable or improving condition. Enforcement guidance for SSSIs from Natural England states that owners/ occupiers must not intentionally or recklessly damage a SSSI on their land, and that they must seek permission before undertaking any potentially damaging activities (Natural England (c), 2011). Furthermore, "…if a SSSI is deemed to be in an unfavourable condition, then Natural England will offer financial support and advice to the owner to help remedy the situation… If an owner continues to refuse to accept a 'reasonable offer' of an Agreement, the Wildlife and Countryside Act 1981 (as

substituted by Schedule 9 to the Countryside and Rights of Way Act 2000) enables Natural England to formulate a Management Scheme for the whole or part of a SSSI" (personal communication Justin Tilley, Natural England, 08.02.12). Financial support can be in the form of a Higher Level Stewardship agreement, or English Woodland Grant Scheme (EWGS) forestry grant.

These perspectives suggest that the understanding of what constitutes *valuable* heritage (worth protecting) is contextual. It highlights that there is a balance to be struck between static preservation and dynamic conservation, and that environmental projects are influenced by value judgements on the relative importance of native/ non-native species, and by notions of 'endangeredness'. This is important since successful management of rare and designated aspects of nature are likely to benefit from increased cooperation between stakeholders. In respect of designation it is observed that the essential questions are linked to 'damage', and whether sites require designation in order to ensure they are not compromised by other land use activities.

Profile of the case study area

From the estate perspective, Aspley and Wavendon Woods are a portion of a relatively large commercial forestry portfolio, and this forestry portfolio itself is one single aspect of a large estate which also includes Woburn Abbey, safari park, deer park and golf club (within 1 mile of the study site). This may have impacted upon the decision to oppose the aforementioned commercial development at the study site as part of the Access Agreement, since "…*the way the branding is, it's quite specific for the facilities, for the estate … the golf course, the hotels, the safari park. I think this (Aspley) is slightly different*" (Property Consultant, 2010). Perhaps surprisingly, despite the high profile of the other activities of Woburn Estate, there is a reluctant to increase signage at the case study site. This is related to the landowner's feeling that "…*we have enough signage in our life we don't need any more*" (Landowner, 2010).

However, the lack of signs itself, according to the Property Consultant (2010), has resulted in a situation where "…*most people think it (Aspley) is public property*", and in the event of the Access Agreement ceasing, the likelihood would be that extensive public use would continue since, "…*in effect the public regard the woods as public open space*" (*Countryside access staff member, 2009). Furthermore, by not outwardly supporting the continuation of the Access Agreement and receiving adverse publicity as a result, as observed by the council representative, the estate may be, "…*missing an opportunity to build on the good working relationship that they have with the public*" (*Countryside access staff member, 2009).

Socio-political issues

In addition to the above, tensions were also observed in relation to personal/class/status issues, relating to personal perceptions of character, historical events, feudal systems of land management, and issues of equality. A comment was made regarding how 'at meetings ... literally everyone is scared stiff' of the landowner, whilst another observation was made that 'in this more democratic age that we live in now…some of the public object to large rich landowners'. Although the Greensand Trust often finds volunteers to work on other projects related to the Bedford Estate, it was observed that it was difficult to recruit local volunteers to help in Aspley Woods, since, "…despite numerous requests amongst the local community for assistance (at Aspley), none has been forthcoming, unlike other projects in the region, suggesting there is a resistance to perceived volunteering for a titled landowner" (personal communication Director of Development, 2012). Interestingly, whilst GST volunteers do undertake work on projects elsewhere on the Bedford Estate, "…*volunteers who live in the area who volunteer for the actual Greensand Trust… come out and do conservation work with us, but not (at) Aspley*" (Ranger, 2009).

In relation to public use of the study site, some comments were made which related to forms of protest. It was joked that, in the event of the Access Agreement being terminated, that there might be a 'revolution', whereby the public would continue to use the site by forcing entry, under the guise of an 'Aspley Liberation front'. A further perspective was offered, that since, "…*there are so many rights of way through the wood, to fence off all the wood and to keep people out would be impossible*" (*Countryside access staff member, 2009). Other forms of public protest were alluded to, in respect of reactions to tree felling. The importance of 'give and take' was noted; since a 'vocal minority' "…*tear down signs and make life, generally make life difficult*"; people that "…*don't like to see change. And one of the ways they protest is they tear signs down…or else they burn equipment or vandalise things*" (Forestry Manager, 2009). However, during the "…first clear fells up at Woodside", the estate forester "…*thought that was going to be a clear blood bath"; however it later emerged that in fact, "…the locals were thrilled to bits… you never know what you're going to find*" (Forestry Manager, 2010).

Response to social and demographic change

Balance between preservation of the status quo and adaptation to change was also observed in relation to social development. Rapid urban development coupled with changes to government funding for outdoor sites had led to reduced finances available for public access management at the study site. This had compelled the councils to explore "…*the development of the activities/facilities which would generate income in order to help sustain access managemen*t" (*Countryside access staff member, 2010).

It was believed by this council employee that the landowning estate did not fully appreciate the likely impact of the growing population of Milton Keynes, and had "…*a desire to keep the woods in its current state",* but that, *"…this is becoming increasingly impossible to deliver particularly with development in the east and south east of the town. We need to provide facilities that cater for the expanding need and that may include some activities which generate income to help manage access*" (*Countryside access staff member, 2009).

In respect of council funding however, the landowner believed that these decisions were a matter of priority, suggesting, "…*I think, you know, with most councils, where there's a will, there's a way. If they want to find the money for something they can find it. If they have to, (when) they do make cut backs; this is a popular and in demand area. It's up to them where it ranks on their list of priorities and popularity and ratepayers*" (Landowner, 2010). Concerns of the estate which related directly to the growing population of woodland users were essentially connected to health and safety at the study site. The response to this was to suggest that the mountain bike area be closed, thus focused the Access Agreement on walking and horse riding activities. This response was unhelpful for the councils, who sought to protect use of the site for a wide range of user groups. The councils representative was thus concerned that "…*the closure of the mountain bike area would only displace the activity to another location or locations within the woods with resulting erosion damage and conflict with other users and forestry operations*" (*Countryside access staff member, 2010). Both representatives of the estate and the councils felt that the other party did not recognise the amount of work put into responses to social change. The Forestry Manager commented that, "…*they tend to forget the amount of time, energy and effort that the estate puts into it*", whilst the Countryside access staff member stated that, "…*they sometimes do not appreciate how much the rangers have been doing to deal with the problems on the site… to deal with all the day-to-day problems that come on the site*" (*Countryside access staff member, 2009).

It is hence observed that whilst Council responses to social change tend to be centred upon serving a wide range of user groups, and ensuring funding for service provision, estate relations are focused upon the views of the local community and *'informing people'* in relation to the Forestry Plan (Landowner, 2010). Thus tensions over responses to social change in this case are related to *objectives* of participating stakeholder in the Access Agreement. Given the vastly differing objectives of these organisations the enormity of the ability to negotiate an Access Agreement should not be underestimated. An empathy exists between parties which allows the Access Agreement to continue. It was observed that, "…*the councils might see it the other way round. They probably don't see it as providing a service and instead see it as*

subsidising woodland, you know private woodland. Who knows what their honest approach to it is" (Landowner, 2010), whilst the councils representative noted that, "…*I think that they do appreciate where we're coming from. The strange thing is both sides appreciate where the others coming from*" (Countryside access staff member, 2009).

8.3 Sandpit Recreation Ground Charity

Aspley Heath Sandpit is the only area of the study site which is not owned by the Bedford Estate or subject to the Access Agreement. The Sandpit is adjacent to the area known historically as Leighton Hollow (now Sandy Lane), this being the site where squatters settled in the 18th century (Section 8.1). The sandpit is currently run as a registered charity (see Table 8:5) which provides a recreation ground for the benefit of locals to improve 'conditions of life' (Charity Commission, 2011).

Table 8:5: Summarised version of 'The Sandpit' public details report (Charity Commission, 2011)

Name	**Sandpit Recreation Ground Charity ('The Sandpit')**
Charitable objects	The provision and maintenance of a recreation ground for the benefit of the inhabitants of the area of the ancient parish of Wavendon without distinction of political, religious or other opinions, with the object of improving conditions of life for the said inhabitants.
Charity trustees	Aspley Heath Parish Council
Activities	Provision of a recreational area,
Who for	The general public/ mankind (particularly inhabitants of the Ancient Parish of Wavendon)
How	Provides buildings/ facilities/ open space i.e. 'The Sandpit'
Charity classification:	General charitable purposes, amateur sport, environment/ conservation/ heritage
Registered charity info	Number 803394; Standard registration from Jan 1994 (scheme sealed December 1984)
Financial summary	Average annual income £731.60 (2007-2011) Average annual spend £0

It is believed by professionals involved in the management of the Access Agreement that Aspley Heath Sandpit is owned by Aspley Heath Parish Council (Forestry Manager, 2010; Ranger email, 2011; Countryside access staff member email, 2011). Furthermore, a request to the Big Lottery Fund (made under the provisions of the Freedom of Information Act 2000) advised that they "…were informed in December

2002 that the land is owned by Aspley Heath Parish Council" (Big Lottery Fund emailed communication, 06.10.11). However, the council themselves have been unwilling to verify this, advising that"…the land belongs to the people and not the Parish Council. The PC only manage the site as the Councillors are named as trustees for the Sandpit Charity" (Clerk for the Parish Council emailed communication, 27.09.11) and have declined to comment further. The land does not appear on the Register of Common Land, and is not registered with the Land Registry Service (Land Registry index map search 171/ G85IFKB, 05.12.11). It is plausible that the land has been in the custody of the parish council since before the existence of title deeds and compulsory land registration. Formal registration of the ownership of this land (and prevent title challenges) would require highly accurate map co-ordinates and a plan of the area (possibly using GIS systems). Since this 'burden of proof' is likely to be beyond the resources of this small parish council, it is possible this may be preventing the verification of ownership and release of information. However this conclusion is based on circumstantial evidence.

Although access to the sand pit was restricted in the 1880s (Sandpit Information Board, Greensand Trust: 2009) currently Aspley Heath Sandpit is open access. The pit has no boundary barrier, and is constitutionally a provision for "mankind". The onsite notice board gives basic geological, ecological and historic information, along with guidance for appropriate behaviour, i.e. 'recreation' for local children, and a request for no bike riding up the side of the pit (Sandpit Information Board, Greensand Trust: 2009). The board displays logos which reveal a partnership between Aspley Heath Parish Council and The Greensand Trust, and another which indicates the area has received 'Lottery Grants for Local Groups' funding. This award, a grant of £4,270, was awarded to Aspley Heath Parish Council on 22 January 2003 "…to fund a community project to rejuvenate an old sandpit area and develop it into an educative walk and environmental area" (Big Lottery Fund, emailed communication, 05.10.11), and presumably funded the information board, metal benches and metal picnic tables at the site. The sandpit is listed as a 'local amenity' on the parish council website (Aspley Heath Parish Council, 2011)

8.4 Public institutions and the study site

8.4.1 Areas of the site protected by law

The area designated SSSI is protected by law (Wildlife and Countryside Act 1981) and the landowner is legally obliged to maintain the site. The assessment and publication of citation and condition reports is carried out by Natural England, a publicly funded organisation. Information is publicly accessible via the internet. Likewise, the area

designated as a Schedule Ancient Monument (SAM) is protected by law against disturbance (Ancient Monuments and Archaeological Areas Act 1979), and permission must be sought from the Secretary of State to carry out works which will affect the monument (English Heritage, 2009: 2). Unlike SSSI, SAM designation does not impose a legal obligation to manage the site, however, English Heritage (a publicly funded organisation) occasionally offer grants for the repair or management of SAMs, and actively "…encourages owners and occupiers to maintain their scheduled monuments in good condition so that the remains survive for future generations" (English Heritage, 2009: 4).

The access land is formally recognised to be land designated under Section 15 of the Countryside and Rights of Way Act 2000 (CROW). This lists land with pre-existing public access rights which apply instead of the CROW rights (Natural England (b), 2011). In the event that the Access Agreement terminates, the right of access under CROW would take effect, a right which, along with PROW, is protected by law (Rights of Way Act 1990; Countryside and Rights of Way Act 2000).

8.4.2 Public funding of the study site

The local authorities have significant input in this privately owned study-site in ways other than the Access Agreement. As described in Section 7.2.1, "...the wood provides important green infrastructure for residents of both authorities and are recognised as such in both councils' green infrastructure plans" (the councils, 2011). Planning services provide permission for land use change and restoration agreements, such as for the fuller's earth quarry. These departments are all publicly funded.

The Bedford Estate receives grant funding, guidance, and a requirement to fulfil criteria set by the (publicly funded) Forestry Commission Woodland Grant Scheme. They purportedly receive £10,000 per annum specifically for managing access (the councils, 2011). There is a further cost to tax payers, of rectifying and patrolling anti-social behaviour at the site. The Police conduct a 'rave patrol' at the weekend (Aspley Heath Parish Council (a), 2011), and send officers on a regular basis to deal with crime such as the burning of cars, selling and use of drugs, vehicle crime, and behaviour of a sexual nature (Personal communication Police Constable, 2007).

8.4.3 Information in the public domain

Information concerning the study site is available in various forms (Table 8:6). These bodies of works are privately owned collections (whether these are government bodies or private individuals) yet all are available in the public domain.

Table 8:6: Examples of information in the public domain

Type of information (not exhaustive)	Access type
Historic Environment Character Area data; Landscape Character Assessment; Green Infrastructure plans; SSSI citation; County Wildlife Site citation; Charity Commission records, the Woburn Sands Collection	Online access
Historic Environmental Record; Archives and Records Service (BLARS);	Public access in person
Biodiversity Recording and Monitoring Centre records; Lottery grant award; Scheduled Ancient Monument citation; Bedford Estate Archive, Woburn Estate Forestry Plan	Access with permission

Online access to information is free (apart from internet costs) and unregulated. Public access in person to the information is also free, but is regulated by a code of conduct within the organisation concerned due to concerns of what use may be use of data. However given legislation such as the Freedom to Information Act 2000, most information is provided on an open access basis.

8.5 Discussion

Vatn (2005) differentiates between four property regime types: private, common, public and open access. A surface reading of property rights for the study site indicates this to be under private ownership. However, the mystery surrounding the unverified ownership of Aspley Sandpit confirms that property rights are not always clear-cut or explicit. Furthermore, whilst land ownership allows for the legal appropriation of *productive* benefits, permitted access allows for the appropriation of *cultural services*-type benefits by public and private individuals and organisations. In this case, it is the institutional structures which regulate use of the site which are of interest (Vatn, 2005: 252). This observation holds particular importance for ecosystem services approaches, since "…in neoclassical resource economics there is a tendency to relate property regimes directly to types of resources", leading to confusion in use of terms such as 'common property resources' and 'open access resources' which are said to "…blur the distinction between management regimes and natural resources themselves" (Vatn, 2005: 262).

An analysis of resource regimes can thus be helpful to distinguish between land ownership and the appropriation of ecosystem service benefits. Resource regimes embody the property rights structure and rules concerning use of the resource, such as transaction costs (the running costs for the regime), resource distribution (i.e. access), and formal and informal behaviour rules (e.g. byelaws, norms) (Vatn, 2005: 252-253).

There are currently two *site-specific* resource regimes in evidence at the study-site, these being the Access Agreement and charity management of the sandpit. In addition to these, there are further nationally active resource regimes which embody further rules, these being the PROW, SSSI, and SAM designations, and Forestry Commission grant schemes. In relation to site-specific resource regimes, the development of the Sandpit Recreation Ground Charity and Aspley and Wavendon Woods Access Agreement are both linked to *historic* property structures and management regimes. Prior to enclosure in the 1700s, much of the study site was common land and was under a regime concerned with the distribution of resources such as sand, pasture, and paths for transport between settlements. Even after enclosure, common regimes still existed formally through the management of the Poor's Allotment, and informally through encroachment and squatting upon the heath.

Whereas these historic resource regimes were primarily about the *physical* functions of the land, the modern regimes at the study site focus on the *cultural services* of the land. The sandpit (as common) evolved into a charity-run, open-access recreational site. The property ownership structure is unclear, since the sandpit predates title deeds, and current land registration requires proof which necessitates access to legal and technological resources likely to be beyond the means of a small parish council. In the absence of formal ownership rights, the land effectively remains as 'free access', owned informally "by the people". This raises a question, whether- in the event of the land being registered, the current charity regime would persist. Historically, Wavendon Heath continued to be of high importance to the local community after enclosure (private ownership), as shown by the court action in 1902 to protect the PROW. This action formalised a path network which exists now, in addition to the network of informal paths which exist in the vicinity of the historic common/ Poor's Allotment. These path networks together allowed for the continuation of public use which evolved into the modern-day Access Agreement.

The structure of current resource regimes is said to reflect the interests of participating organisations and individuals (Vatn, 2005). In the case of the access agreement partnership, broadly speaking the landowning estate is concerned with commercial forestry at the site, the local authorities are interested in maintaining public access, and the Greensand Trust is orientated towards conservation and public education. Despite the disparate interests, these organisations have a common concern, for minimising risk of harm to the public, for safety and for the avoidance of litigation. In accordance with this, recreational activities with the highest risk (e.g. biking on wooden structures, large-scale parties, fires) are forbidden; low risk recreation (e.g. walking) is open access, whilst recreation with a heightened safety risk (e.g. horse-riding, mountain biking) requires a permit. The permit scheme is central to the Access

Agreement as a resource regime, but its full implementation is limited by associated costs. The result is that some horse-riders and mountain bikers have avoided the costs of permits, whilst enjoying the benefits of the wood. This situation is representative of the 'free rider problem' (Dietz *et al*, 2002: 19) The free rider problem is usually resolved by the adoption of rules which regulate individual actions to account for 'social benefits and social costs' (Dietz *et al*, 2002: 20). In the case of the access agreement regime, the socio-political process for renegotiation included user group meetings, whereby group members were made aware of the issues involved, and resolved to self-regulate behaviour to ensure the continuation of the agreement. In addition, renegotiation of the most recent access plan included the resolution to increase signage and rangering to ensure adherence to the permit scheme.

Despite this, 'free riding' and the associated public costs still exist. At the study site, cost shifting (Vatn, 2005: 270) to the taxpayer is evident through the reliance on emergency services to control antisocial behaviour, fires, and raves. Additionally, access agreement partners and charity board members devote time, communication, and organisational resources to the management of the respective regimes which do not feature in accounted transaction costs. Likewise, charity grants, lottery funding, and resources associated with institutions which feed into the study site are not accounted for in explicit regime transaction costs, yet add value to the site in terms of cultural services benefits. This blurs the distinction between notions of private and public property, since shows the existence of embedded forms of investment which interdependently construct resources and regimes as contextual entities.

Differences in the underlying interests of access agreement partnership organisations have led to tension in regards to financial support, and the perceived value of site features. This was evidenced by the protracted negotiation process for the new access agreement, and distinct cartographic representations of the site (by partnership organisations) which emphasised or obscured paths, thereby focusing public use to certain areas supportive of the interests of that organisation. Nonetheless, empathy and a commitment to the scheme ensured that negotiations continued to a satisfactory conclusion. Resource user perceptions of the access regime were also found to be linked to partner organisational interests. The landowning estate's choice to minimise signs and publicity associated with their ownership of the estate has contributed to the perception of the site as public property, fuelling extensive public use. Perceived remnants of 'feudalism' have led to antagonism towards the estate, and the resistance of the local community to volunteer in Aspley Woods and Heaths. Conversely the local authority and Greensand Trust charity appear to have cultivated images supportive to the needs of different recreational groups, thereby encouraging

active and inclusive participation in user forums, and orientating individuals towards support for the resource regime.

Wider social processes are thus held to be central to the implementation of resource regimes, since "… a *property right* is a *social relation*. It is a relationship between the *rights holder* and the *rights regarders* under a *specific authority structure*… defined and defended through socio-political processes" (Vatn, 2005: 254, italics author's own). The 1902 PROW court action, designation of the SSSI and SAM, charity registration, and renegotiation of the Access Agreement all typify socio-political processes which define relations between property rights and resource distribution. Furthermore, it is observed that these relationships enable different *forms* of property ownership, such as the rights to possess, use, manage, derive income, derive capital, security, transmissibility, the absence of term, prohibition of harmful use, liability to execution, and have residuary rights (Honoré, 1961; cited in Vatn, 2005: 254-255). By examining the different forms of property ownership and benefit streams in evidence at the study-site, it is surmised that whilst *provisioning* service-associated benefit streams (i.e. those from commercial forestry) belong to the landowner, the right to possess, use (or harvest), manage and derive income from *cultural* services-associated benefit streams are shared between various stakeholders (Table 8:7) i.e. local authorities (LA) (e.g. Milton Keynes and Central Bedfordshire councils, national institutions (e.g. the Forestry Commission, Natural England and English Heritage), the general public and private enterprise (illustrated by Plate 8:5).

Table 8:7: Ownership of site-based resources and appropriated benefit streams

Resource regime	**Ownership type**	**Owner**	**Examples (from research)**
Private ownership of site as commercial forest	Right to possess	Landowner	The site as part of the Bedford Estate
	Right to use		Felling and wood chipping of trees
	Right to income		Income from selling of timber/ biofuels
	Right to manage	National institutions	Felling/ restocking criteria set by the Forestry Commission for EWG grant
Site accessed through public rights of way	Right to possess	Local authority	Surface / land beneath paths owned by LAs. Paths as part of a network on definitive map
	Right to manage		LA responsibility for upkeep of paths
	Right to use	Public	Access for walking, cycling etc.
Designated areas of site (SSSI / SAM)	Right to possess	National institutions	Wavendon Heath Ponds SSSI / Danesborough Hillfort SAM as part of Natural England / English Heritage portfolios
	Right to manage		Legislative power vested in these institutions to manage/ protect designated land
Site as access agreement land	Right to possess	Local authority	Site as part of councils' green infrastructure portfolios
	Right to manage		Funding/ organising of access management
	Right to income		Cash generated from permit scheme
	Right to use	Public	Access for recreation; to photograph; to collect study material etc.
	Right to income		From images/ sound as art
	Right to security		Cost to taxpayers of regulating anti-social behaviour
	Right to prohibition of harmful use		Cost to taxpayers of conducting health and safety assessments
	Right to income	Private enterprise	Income from selling site-based services such as horse riding lessons, mountain biking tours, or from goods marketed using images of the site

Plate 8:5: Wood sculptor in A5130 layby, Old Wavendon Heath

This shows that whilst the privately owned aspects of the site conferred provisioning service-associated benefit streams upon the land owner, the other active resource regimes allowed the appropriation of cultural services-associated benefit streams for a variety of stakeholders, and did (in some cases) include the right to derive income.

It is however noted that the need to provide a right to security, to prohibit harmful use, and to manage public access incur *transaction costs*; and that these- a necessary part of (legislated) modern resource regimes, are shifted to taxpayers who may not be the recipients of regime benefits. Consideration of the externalised transaction costs (both explicit and implicit) showed the appropriation of cultural services benefit streams to be a consumptive process due to a number of factors. Firstly, a correlation existed between the number of people accessing the site, and the degradation of site infrastructure and increasing risk of litigation for regime partners. Secondly, the invested resources of institutions which provided services that *enhanced* the site were not accounted for in resource regime transaction costs. Likewise, the invested resources of institutions which provided services to *protect* resource users and the wider community from harm were not accounted for. Finally, the presence of visitors seeking solitude as part of their cultural services experience (Section 6.3.6) revealed

there to be a relationship between one person's use of the resource and the availability of 'resource units' for others.

This chapter suggests that the perception of cultural services as a non-consumptive phenomena is a fallacy. When considered in terms of property rights, cultural services comprise a 'multi-stock process', i.e. one "…where many stocks are involved, in ways that may in some cases be consumptive and others not" (Common and Stagl, 2005: 90).

8.6 Chapter summary

It can be argued that as a society becomes more developed, society is able to place a greater value on cultural services. Hence modern resource regimes increasingly address access to cultural services, in contrast to traditional resources regimes (such as common land) which primarily focused on provisioning services.

Modern resource regimes can be site specific (i.e. the access agreement and recreation ground charity) or national (e.g. PROW). They are likely to represent the interests of participating organisations, and reflect a consensus which balances areas of mutuality and tension between stakeholders.

It can be difficult to maintain exclusive access to cultural services, and hence individuals can benefit from the system without being directly liable for costs. At the study site there is *free access* because of the inability to secure the perimeter and patrol the site in order to prevent bylaw breaches. The *free rider* problem exists where high-impact visitors avoid the cost of permits but benefit from site use.

The failure of the resource regime to regulate resource use has created externalities, since costs associated with the provision of security and safety (by emergency services) are shifted to the taxpayer and to the landowning estate.

Resource regime transaction costs do not account for the full costs of managing the regime (from the private landowner, local authority and conservation charity) nor include alternative funding sources (e.g. grants, lottery funding). These hidden costs show that regimes are contextual entities which represent embedded forms of investment that add value to cultural services.

In terms of cultural services, private landownership need not confer the full extent of property or benefit streams associated with a resource, since ownership has traditionally concentrated on the *provisioning* services of land. Modern resource

regimes give the public a right to the appropriation of *cultural services* which can lead to financial benefits.

Accessing cultural services benefit streams is a consumptive multi-stock process; stocks (such as site infrastructure, public liability insurance, the invested resources of institutions) are consumed through resource use, and a relationship between one person's use of a resource and the availability of ‘resource units’ for others is revealed by visitors who seek solitude.

9 Cultural service as discursive resource

Cultural services have hitherto been explored through the following lenses: as an experience of place, as a contextually situated phenomena, and as a resource regime. This has required analysis of verbal and textual accounts of the study site, and has subsequently shown the cultural services of this site to be multi-sensory, contextually-dependent, ambiguous phenomena, which are influenced by wider (social, political, ecological and geological) processes. A review of literature has also shown cultural services to be socially constructed from a range of interdisciplinary discourses. Together, these findings revealed the inter-relatedness of cultural services with *context* (temporal, geographic and social), and a reliance on description and explanation for the sharing of cultural services. It is therefore observed that cultural services, as a social construct, are fundamentally related to *communication*.

In order to explore this conjecture further, this chapter undertakes an analysis of documents which contain descriptions of the study-site, and which each bear relation to published accounts of cultural services. Documents were analysed using the principles of Foucauldian discourse analysis (Willig, 2008) in order to identify features which enabled the construction of site-related cultural services through text and graphics. These documents were treated as a 'corpus' since, "…corpus analysis allows the researcher to identify meanings and values in the language of many individuals in a discourse community"; and thus, "…allow(s) for more robust statements to be made about discourses than can be made through the analysis of single texts" (Groom, 2011).

9.1 Corpus selected for analysis

As detailed in Section 3.3.5, documents were identified through the desk study, and selected based on the presence of detailed descriptions of the study site. Documents which comprised the corpus subsequently comprised nine written documents, one webpage, one set of on-line forum messages and one notice board (also reproduced as an leaflet). These documents are detailed in Table 3:14, and summarised (with abbreviated titles) in Table 9:1. Whilst these documents all related to the broad geographic location under study, they did not all correspond precisely to the area of the study-site. This issue of correspondence formed part of the chapter findings, and is detailed in Section 9.2.1.

Data from the corpus analysis which informs these sections has been tabulated and may be viewed in Appendix 12.3A.9.

Table 9:1. Summary description and acronyms for the corpus analysed.

Number	Acronym	Description
1	AA	'Aspley Woods Access Agreement' options report
2	IW	'Aspley Woods' webpage
3	CWS	'Wavendon Heaths and Aspley Woods Country Wildlife Site'
4	FP	Bedford Estate 'Forest Plan'
5.	ES	'Ecological Survey', for Forestry Plan (above)
6.	PS	'Aspley Guise and Aspley Heath Parish Survey'
7.	LCA	'Mid Bedfordshire District Landscape Character Assessment'
8	GI	Aspley Guise 'Green Infrastructure Plan'
9.	SSSI	'Wavendon Heath Ponds' SSSI citation
10.	SAM	Danesborough Hillfort schedule entry copy
11.	PG	Online forum concerned with mountain biking ('The Playground')
12	SP	'Aspley Heath Sandpit' noticeboard/ leaflet

Corpus documents used primarily qualitative language to construct the discursive object (12.3A.9.1). Notably, the surveys and assessments (CWS, PS, LCA, SSSI and SAM) tended to use long, flowing expressive passages to convey images of the site. Many documents constructed the discursive object by reference to qualitative descriptions of shape (12.3A.9.2). Shape was used to describe functions, e.g. edge strips, buffer zones (PS) ascent climbs and downhill runs (PG); and as adjectives to create strong mental images, e.g. triangular shaped sandpit (CWS), large-scale rolling elevated landscape (LCA), or 'steep sided spur' (SAM). Two documents described the shape of the (bounded) discursive object as something was mutable, amorphous, and with barriers that were permeable and subject to change (AA, PS). Those documents which exemplified specialist knowledge from a specific discipline (i.e. forestry, ecological and historical surveying, archaeology, specialist recreation) used substantial expert terminology, and this conveyed a higher level knowledge and insight. Notably two documents which conferred legal status on the discursive object (SSSI and SAM) comprised almost entirely expert terminology. Conversely documents in the public domain (GI, LCA, SP and IW) were written in language accessible by laypeople, in line with the purpose of the construction. Quantitative information was employed primarily by the Forestry Plan, the Access Agreement, and the description of the Scheduled Ancient Monument (12.3A.9.3). In two of these examples, numerical information appeared to be provided in support of documents' purpose to procure

funding (AA, FP). Three ecologically orientated documents (CWS, ES, SSSI) provided minimal quantitative data.

9.1.1 Overview of key features of documents

The corpus analysis documents were recognised as having both common themes and distinguishing characteristics. An overview of documents is presented here, to highlight the key features which differentiate the text from others relating to the site.

1. Access Agreement Options Report (AA)

This document focused on the intangible status applied to land (an access agreement) rather than the tangible features of the land itself. The report presents the site, its value to the local community, and the cost of managing public access in the context of decreasing public funding. Various options are presented for generating alternative sources of income to fund access management. The concept of the environment fulfilling social needs is constructed through the use of terms such as health, physical and mental wellbeing, environmental awareness and quality of life. Its construction appears to have a 'persuasive' function; there is an emphasis on benefits to different parties (the Council, the landowner, the public) and a detailed explanation of funding problems and possible solutions. The construction is located within wider discourses of wellbeing (and nature), partnership working, legal frameworks, budget cuts/economic austerity, and risk management. From this position, action orientations are made explicit; the Council wishes the access agreement to continue, but a way of funding public management must be found. Options which might be inconceivable in other circumstances (i.e. to have profit making, council-owned facilities operating on estate land) are given credence due to the unavoidable financial situation and the high level of importance of keeping the facility open.

2. Greensand Trust Website (IW)

This document differs from others through the medium and presentation of information. A condensed version of the discursive object is offered via a single online webpage, and it is also presented as a 'service' rather than a geographical location. Land cover information is provided by a picture, and textual content focuses on advised public behaviour, and public information. Designations are listed but not described. Notably, in order to access this webpage, one must 'scroll' over the correct part of the online map which requires prior knowledge of the site's geographical location. It is possible to locate this discursive construction within the wider discourses of management of public behaviour, control of public areas, outdoor recreation, and systems of designation. The construction of the object in this way

presents it as a natural area which is open to the public, but which has a 'rules system' attached to it. It also constructs the object not as an area of land, but as a service provided by the Greensand Trust (shown through the location of the webpage under the 'our services' tab). This subsequently presents the Greensand Trust (the subject) as being a public service provider, and as having responsibility for public behaviour in this context.

3. County Wildlife Site (CWS)

This document constructs the geospatial area as a County Wildlife Site which corresponds with the entire Bedfordshire portion of study site. Interestingly, the name of the author is not given; however, organisations mentioned include the county council, local biodiversity recording and monitoring centre, and Natural England. The document is available from all these sources, and is also listed with the Wildlife Trust. It receives mention in many other documents such as local and county GI plans, SSSI citation, and in the Historic Environment Record. The document provides information on the placement and legal (ecological) status of the site, habitat data, and a description of the ecology of the site, presumably in order to justify the attribution of CWS status. The CWS is recognised for a number of specified habitats, i.e. ancient semi-natural broadleaf woodland, ponds, lowland heathland, broadleaf woodland, mixed and Yew woodland, coniferous plantation, acid grassland, scrub, dwarf shrub heath, and acid mire. The document describes each separate area of the site with a single sentence, using a grid reference and habitat title to indicate the flora and fauna present. The difference between this construction of the study site and others is the focus on the wildlife and ecological value of the site, and the significance of this within the County. This is situated within the wider discourses of ecosystem complexity, the value of ancient woodlands, and human impact on natural features. The object is constructed in such a way that the ecological diversity of the site is highlighted, and the in-depth descriptions accrue value to these features. Whilst the document does not indicate any direct conservation activities, the implicit action orientation of this construction is to value, and thus 'care' for the biotic elements of the site.

4. Estate Forest Plan (FP)

This construction differs from the others firstly through a focus on the maximisation of the productive services offered by the site, and secondly through the time period invoked by the plan. The primary purpose of the plan is to create wealth through commercial forestry, and this theme underlies all other topics within the text. The time period referred to by the construction extends historically for over 400 years, and into the future for 140 years (planting of Oak). Features of the document thus serve

to locate the construction within the wider discourses of historic land changes (e.g. the enclosure act), wealth ('old money'), the aristocracy, and planning for future success. Construction of the discursive object presents it primarily as a long-term resource which generates income for the landowning family. Whilst it is acknowledged that the public gain benefit from this site, it is not evident that this is considered in any way to be a 'function' of the wood, but is almost a rather inconvenient by-product of the site's proximity to settlements. References to ecological value are present, but are portrayed as secondary to forestry, shown by the non-commitment to ecologically beneficial forestry options. The construction of the wood (by the estate Forestry Manager) in this way serves two purposes. On a superficial level, it fulfils the objectives set by the Forestry Commission necessary to obtain grant support. However closer examination reveals that a number of 'forestry standards' appear to be token gestures, and the main focus of the Forestry Department is making positive financial returns to the estate. This is perceived to be a position which would please the landowner, recognised as having a considerable amount of power in this situation. However, it is understood that this document was written in the time following a significant decrease in estate wealth through the paying of death duties, and is potentially a reflection of the Forestry Manager's perception of events and his role.

5. Ecological Survey (ES)

This document differed from others in its construction of the site, due to it being attributed intrinsic ecological value, aside from its value to people. However, this value is shown using an expert-driven conceptual framework. Consequently, the site is presented as having an 'exclusivity', accessible to those with specialist knowledge. Wider discourses which are evident through this construction include the value of ancient woodlands, the complexity of ecosystems, and the need to protect natural elements.

6. Parish Survey (PS)

This document is differentiated by its portrayal of the wood as crucial to the historical development of the parish. The text presents a rich and detailed account of historic social life, and the influence of this on the buildings and current landscape which comprise Aspley Parish. This account locates the discursive object within the wider discourses of historic affluence and poverty, enclosure, historic agricultural practice, manorial lands, and the historic shifting of power between the church, landowners, and the parish. The action orientation which is achieved from construction of the object in this way is to increase the interest associated with the area, in an intellectual and educational capacity. Additionally, the position increases the stature of this small

village and its surrounding land (which occupies a relatively small geographical space) by increasing its 'size' in the dimension of time. As such, possibilities for action include further study, and the creation of an enduring record which charts the development of the area.

7. Landscape Character Assessment (LCA)

The difference between this construction and others is the broader scale at which the assessment has been conducted. The main focus of the work is the enduring landform, but one which has altered over time through human land-use changes, and thus represents a record of landscape development. Although the assessment was undertaken by an independent source, its position as being a government-recommended exercise indicates the public orientation of its outcomes. This explains the accessibility of both the language used, and the availability of the document. Wider discourses which are evident through this construction are thus situated around public benefit, obtained from aesthetic features of landscapes and from the historic environment. The construction of the object using extensive qualitative language presents the landscape as an enabler of literary and aesthetic creativity, and indicates the value and appeal of certain features. This position supports future action orientations which assist in the conservation of the historic environment, valued landscape features, and important recreational (natural) resources.

8. Green infrastructure plan (GI)

The difference between this construction and the others is that the study site is presented using planning terminology, and is described primarily in the context of its value to local people, and in the fulfilment of policy objectives, rather than any intrinsic ecological value. Wider discourses which are evident in this discursive construction include demographic change, urban growth, recreational needs of the public, and the importance of legislation. Construction of the object in this way serves to present it as a local resource that is accessible by all; one that is useful in a variety of contexts, to many different people, and which contains a variety of beneficial natural artefacts. In sum, it is viewed from a utilitarian perspective.

9. Site of Special Scientific Interest (SSSI)

This document is demarcated through its focus on ecological information (in the current time period), and the value of species present at the site which warrant legal protection. The statutory designation of SSSI is indicative of a wider discourse which values certain species seen to be scarce or rare. A further implicit discourse is that of insecurity over human action, which necessitates the legal protection of certain

species, thus implying a threat of punishment for rule breaking. Construction of the object in this way serves a triple purpose. Firstly, the detailed classification of species present at the site provides a record of rare flora and fauna, which may be referred to at a future date in order to monitor the state of the area. This has implications for the landowner, since the responsibility to maintain the condition of the SSSI is theirs. Secondly, the certification process itself carries legislative power which means that area is protected from certain land uses and potential damage. Thirdly, the title of the designation 'Site of Special Scientific Interest' indicates an intellectual and/or educational value inherent in the site. These constructions thus warrant the action orientations of scientific study, conservation activities, and potential legal action.

10. Scheduled Ancient Monument (SAM)

The construction is differentiated by its focus on this afforested 2.4 ha area as an ancient monument, rather than an area of forestry or ancient woodland. It is thus located within the wider discourses associated with the Iron Age, and with the conservation of the historic environment. The object is constructed in a way which is of interest to people with prior knowledge, or a specific requirement for in-depth archaeological detail. This serves a similar purpose to that of the SSSI certification, namely as a record of historical artefacts for monitoring and for study, and in order to promote conservation activities. However the legal protection afforded to the SSSI is lessened in the case of the SAM, as is the management responsibility placed on the landowner. Furthermore, since the site has only undergone partial excavation, this hints that there may be further items still buried beneath the soil; a position which implies support for future excavation activities.

11. Playground (PG)

This construction differs from the others as it features one niche recreational user group, and subsequently constructs the discursive object solely from this perspective, as a good place for off-road mountain biking. This user group engages in a particularly 'high octane' style of recreation that requires specialist equipment, and a specific land type. The wider discourses which are invoked are those of extreme sports, the great outdoors, risk, and travel. Construction of the discursive object as above serves to encourage other members of the user group to try out the site. It builds a positive picture of the area as offering a variety of mountain biking experiences, and as offering the requisite terrain without the need to travel long distances to areas which have this specific land type.

12. The sandpit (SP)

There is a strong historic component to this construction, which differs from the others as its primary function is public information. However, the inclusion of reference is to wildlife and historic settlement expands the object to become something more than just a sandpit. It is an historic artefact, and one which has ecological value. The layout of the construction (the leaflet/ noticeboard) makes for easy assimilation of information, and the illustration of various points (such as old buildings and wildlife) both support the text, and make it less necessary (increasing accessibility for non-readers e.g. children). The wider discourses which are invoked are those of conservation, connection with the past, and interest in natural sciences. Construction of the object in this way encourages a particular type of visit to the discursive object (the sandpit), one which is intended to be educational, enjoyable, accessible to a variety of individuals, and which does not disturb or damage the object itself.

9.2 Elements of construction

The initial phase of the analysis identified how the discursive object (i.e. the study site and its suggested benefits) were constructed within the text. Throughout analysis it emerged that certain elements of the text were found to be significant to the construction of the discursive object, these being; name and location, physical features, social and ecological processes, and time. These aspects are each addressed in turn, showing how separate documents use discursive resources to purposefully construct the cultural services of the study-site in different ways.

9.2.1 Name and location

This thesis refers to the study-site by the title Aspley Woods and Heaths, and sets the boundaries of the site accordingly to its presentation on an Ordnance Survey map (Figure 1:2). It has been observed however that this method of delineation should not be taken for granted. Documentary evidence (relevant to the cultural services of this site) varied in the means by which the discursive object was identified, since the site was referred to by a number of different names and constructed locations. A comparison of the names attributed by corpus documents to the seven named areas shown on the Ordnance Survey map, (i.e. Aspley Woods, Old Wavendon Heath, New Wavendon Heath, Bow Brickhill Heath, Bow Brickhill Park, Browns Wood, and Wavendon Wood) showed there to be a high level of divergence between the names given by different documents (

Table 9:2: seen also 12.3A.9.4).

Table 9:2 Overview of named areas referred to by corpus documents

Doc.	Entire area named by document	Specific areas named by document of relevance to study	Correlated Ordnance Survey map names
AA	Access agreement area	Aspley Woods	Aspley Woods, Old Wavendon Heath, New Wavendon Heath, Bow Brickhill Heath, Bow Brickhill Park, Browns Wood, Wavendon Wood
IW	Aspley Woods	Aspley Woods, "woodland bounded by Bow Brickhill, Woburn Sands, Aspley Guise and Longslade Lane"	
LCA	Woburn Greensand Ridge	The Greensand Ridge, Woburn, Woburn Abbey, Aspley Heath, Wavendon Heath, the Greensand Ridge Walk, and Milton Keynes Boundary Walk	
FP	Woburn Woods	Compartmentalised (numbered) forest stands (Table 9.4))	
ES	Woburn Woods	Compartmentalised (numbered) forest stands (Table 9.4)	
PG	The Playground	Aspley Woods, Woburn Woods, Woburn Trails	
PS	The Parish of Aspley Guise and Aspley Heath	Aspley Woods, Wavendon Heaths, Aspley Heath, Aspley Sandpit	Aspley Woods, Old Wavendon Heath, New Wavendon Heath (i.e. Bedfordshire portion of site)
GI	Aspley Guise Parish	Aspley Woods	
CWS	Wavendon Heaths and Aspley Wood	Wavendon Heaths and Aspley Wood. Grid Reference SP935345	
SSSI	Wavendon Heath Ponds	Wavendon Heath Ponds Grid Reference SP931339	New Wavendon Heath (portion of)
SAM	Danesborough Camp	Danesborough Camp Grid Reference SP92113482	Wavendon Wood (portion of)
SP	Aspley Heath Sandpit	Aspley Heath Sandpit	Old Wavendon Heath (portion)

Particular examples which highlight the ambiguous nature of place naming and respective locations included the Access Agreement (AA) and Web Page (WP), which both named the area of relevance as 'Aspley Woods', but which actually covered a geographical *location* greater than Aspley Woods (as shown by the area, 344 ha and 324 ha respectively). These documents subsequently used a name which- according

to the Ordnance Survey map, represented an area smaller than the actual location presented. Another document, the Landscape Character Assessment, used a location name which related to the *landform* underlying the study site (the Woburn Greensand Ridge). Through naming this, the surrounding locations (Woburn, Aspley Heath, and Wavendon Heath) and two paths which traverse the study-site (the Greensand Ridge Walk, and Milton Keynes Boundary Walk) it is surmised that the document implicitly relates to the study site without formally naming it. The biking internet forums (PG) used a multiplicity of names to label the entire site, (including Woburn Woods, Woburn Trails and the Playground) which did not appear in the Ordnance Survey map. Notably, following this analysis, a sign installed at the study site (2011) named the site as 'Woburn' (Plate 9:1), and a point of interest is hence whether this action homogenises the future naming of the site.

Plate 9:1: Bike track welcome sign, Old Wavendon Heath

Conversely, some documents used a quantitative system to map textual constructions to named geospatial areas. The SSSI, County Wildlife Site and Scheduled Ancient Monument documents were able to be mapped directly onto their respective geographical areas using grid references. This allowed for a higher level of accuracy, particularly important for the SSSI and SAM which were both under 5ha in area. The Forestry Plan and Ecological Survey also mapped named areas directly onto the study site numerically; through the use of *compartment numbers* (Table 9:3). These related

to specific stands of trees, and allowed for the subdivision of the entire study site into 42 separate areas averaging 19 ha in size.

Table 9:3. Names of estate Forestry Plan compartments which relate to study site.

401 c1, 401 e1, 401 b1, 401 b2, 401 a, 401 f1, 401 d1, 402 e1, 402 a1, 402b1, 402 c1, 402 d1, 403 b, 403 d1, 403 a1, 403 c1 309 c1/d1/d2/a1/a2/b1/e1; 313 e1, 312 b1/d1/e1/b2/a2; 311 s, 314 s, 308, 302, 303, 305, 315, 304, 301, 303, 316, 317, 318

Comparison of these place-names shows that the attribution of cultural services-relevant information (held in documents such as these) can fluctuate in the degree of accuracy they hold; often overlapping with other related named locations (Figure 9:1).

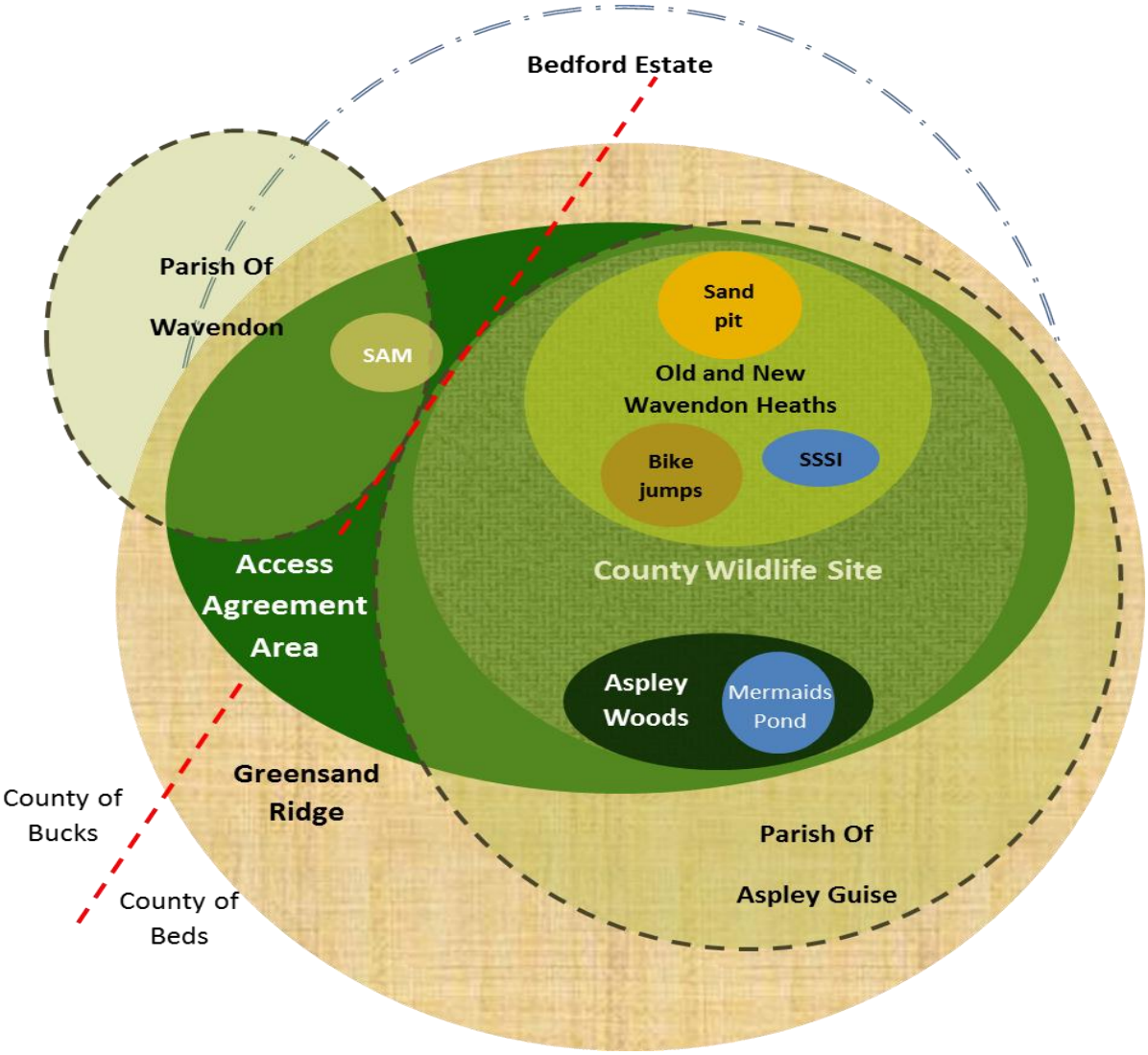

Figure 9:1: Graphic showing different names given to areas which correspond geospatially with the study site (not to scale and not exhaustive)

Whilst scientific studies may favour the accuracy afforded by quantitative systems of identification, the names which relate to this site (as revealed by documents) disclose multiple layers of understanding and social discourses, such as notions of utility (Aspley Heath *Sandpit*), political or ecclesiastical affiliations (e.g. the *Parish* of Aspley), legal status (e.g. *Scheduled* Ancient Monument), land cover (Old Wavendon *Heath*), and cultural value (Site of *Special Scientific Interest*). Furthermore, documents appeared to construct the *location* of the study-site contextually (see 12.3A.9.1), such as by reference to *property rights* systems (land ownership and manorial lands; AA, FP, ES, PS, GI); areas of *political* control (local authority AA, CWS, FP, GI, regional spatial plans AA, parishes PS, GI, SAM, SP); *ecclesiastical* zones (PS); systems of *bedrock identification* (LCA, SSSI, SP); *spatial measurement* (e.g. elevation above sea level PS, LCA, SAM; grid references IW, CWS, SSSI; compass points CWS, LCA), and areas of *sociocultural significance* (locally significant resources IW, FP, GI; urban settlements AA, IW, FP, PG, PS, LCA, SSSI; national significance SAM, PG).

The contextual and socially constructed manner by which sites are thus identified has implications for the communication of ecosystem cultural services, since this requires that a connection be made between a site (or ecosystem) and purported services. Place-names and locations appear to be a vague and culturally laden way of relating cultural representations and conceptions of social use to geographic land-mass, but are nevertheless a common means of presenting textual accounts of cultural services.

9.2.2 Physical features

All 12 documents constructed the discursive object by reference to physical features (12.3A.9.5). Features were categorised into broad classification groups to assist the identification of patterns, and it was noted that specific features were emphasised by different documents. Texts referred to physical features at different scales, and this had an impact on the construction created. For example, whereas the Ecological Survey and CWS constructions used ecological elements at the level of a *habitat*, the SSSI construction detailed *individual species*. Similarly, the LCA and Aspley Sandpit constructions utilised *broad* historic social features, but the SAM and Parish Survey constructions gave *detailed breakdowns* of historic social features. Additionally, the LCA, Parish Survey and Aspley Sandpit constructions all included details of *large scale* geomorphic processes.

Physical features classed as *recreational* were those which broadly related to infrastructure, most significantly paths (IW, LCA). The AA had the most comprehensive listing of recreational infrastructure, and notably this document was created in relation to public recreational access. One document (PG) had highly detailed recreational

features specific to mountain biking, which related to gravity or changes in elevation, or to motion or changes in geographical placement. Interestingly one document intended for public interest (IW) did not reference the mountain bike track at all. Other documents detailed *ecological* features; at either a broad (IW, FP, GI, SP), or more detailed level (CWS, ES); whilst a further two (created for or by conservation organisations) named specific species (SSSI, SP). Hydrological (CWS, FP, and SP), land-use (GI, FP, and PS) and geological features (PS, LCA, and SP) were each used by three documents to construct the discursive object.

Three documents which needed to have a wide scope of interest (FP, LCA and SP) had the most varied inclusion of physical features. However, some physical features were unique to particular constructions, these being features relating to historic society (PS) and the presence of undesirable items in the study site (FP). Notably neither of these documents were created for the purpose of public information (see Table 3:14). Texts which emphasised ecological features in great depth (ES, CWS, SSSI) tended not to refer to any social features (e.g. recreational, land-use or built infrastructure) in their construction of the discursive object. Conversely, other socially-orientated documents did not refer to any ecological phenomena (PS, LCA, AA, BF).

9.2.3 Social and ecological processes

All 12 documents constructed the discursive object with reference to ecological and social processes (12.3A.9.6). These processes were categorised into broad classification groups to aid the identification of patterns. A connection was subsequently observed between the social and ecological processes referenced in discursive constructions and the intended purpose of documents (Table 9:4).

The Access Agreement was observed to refer to social processes which supported the proposition that continued formalised public access was beneficial to all stakeholders. The Information Webpage for the Greensand Trust referred to social processes in light of the organisation's responsibilities to manage public access for the Access Agreement. The County Wildlife Site document referenced processes which emphasised the site's ecological value in the broader context of public access, thereby justifying Local Authority resources. Processes referred to by the Forestry Plan appeared to reflect the wide criteria set by the Forestry Commission, and this was further supported by the Ecological Survey which detailed its woodland classification process. The Parish Survey presented a diachronic overview of social processes relevant to the development of the locality for information purposes.

Table 9:4: Purpose of discursive constructions with reference to processes

Doc.	Purpose of document	Social processes	Natural processes
AA	Renew public access agreement and gain funding	Behaviour management, legislative, access	
IW	Inform public and promote organisation	Behaviour management, legislative	
CWS	Conservation, monitoring and policy making	Behaviour management, conservation	Ecological
FP	Obtain grant (public funding)	Behaviour management, silviculture	Ecological Meteorological
ES	Survey for Forestry Plan, to obtain grant (public funding)	Classification	Ecological
PS	Record the development of local settlement for public information	Property rights, commercial, institutions	
LCA	Assess and monitor landscape for policy purposes	Conservation, land-use, development policy	Geological
GI	Identify Green Infrastructure for future policy	Classification, property rights, legislative	
SSSI	Conservation and monitoring of nature for planning and policy	Legislative	Ecological
SAM	Conservation and monitoring of heritage for planning and policy	Property rights, legislative	
PG	Knowledge sharing and public information	Sense of mystery, non-conformity, site comparison	
SP	Public information and promotion of conservation organisation	Institutions, access	Geological

The Landscape Character Assessment referred to social processes which supported the identification and preservation of valuable land features. In this document, depth of information seems to have been presented in lieu of legislative support. The Green Infrastructure plan referenced social processes to identify, assess and protect public use. The SSSI and Scheduled Ancient Monument both detailed processes which emphasised the value of respective sites, and supported this with details of social (legislative) processes to protect identified sources of value. Likewise, the Playground and Sand Pit documents also referred to processes which emphasised value, but without legislative support; instead referencing alternative social processes of public behaviour and institutional support.

9.2.4 Time

All 12 documents constructed the discursive object by reference to time (12.3A.9.7). Temporal characterisation formed a strong component of constructions, and differed greatly between documents (Table 9:5). Hence (as per geographical bounding) the temporal boundaries of the study site were found to be constructed.

Whilst no constructions were written in the present *tense*, two (SSSI and PG) were generally only concerned with the present *time*; possibly because reference to current events was all that was needed in order to fulfil the purpose of the construction. All of the documents with a planning/policy orientation featured projected future constructions. Four of the constructions (all government initiated; Scheduled Ancient Monument, County Wildlife Site, Parish Survey, and SSSI) were more than a decade old. Since these were the newest available versions of these documents, this indicates that constructions created over 10 years ago did not necessarily hinder the legislative 'power' of these documents to warrant current social action. The document which covered the greatest time period was the Aspley Sandpit information sheet which referred to geological processes 120 million years ago. Indirect references to the post-mediaeval period also occurred through depictions of ancient woodland/mature trees.

Table 9:5 Overview of the use of time in constructions of the discursive object

How time is used to construct object	Relevant documents
Reference to future time period	GI , FP, AA
Reference solely in the modern era	SSSI, PG
All references more than a decade old	SSSI, SAM, CWS, PS
Reference to prehistoric era	SAM, LCA, IW, SP
Post-mediaeval period (reference to ancient/mature woods)	GI, ES, CWS, FP
Reference to post-mediaeval and future	FP
Greatest time period referenced	SP (120 million years)

The time periods described in the discourses can be categorised into eight periods: the Cretaceous, Mesolithic, Iron Age, Roman, Mediaeval, Post-Mediaeval, Industrial/Modern, and Future periods (Figure 9:2).

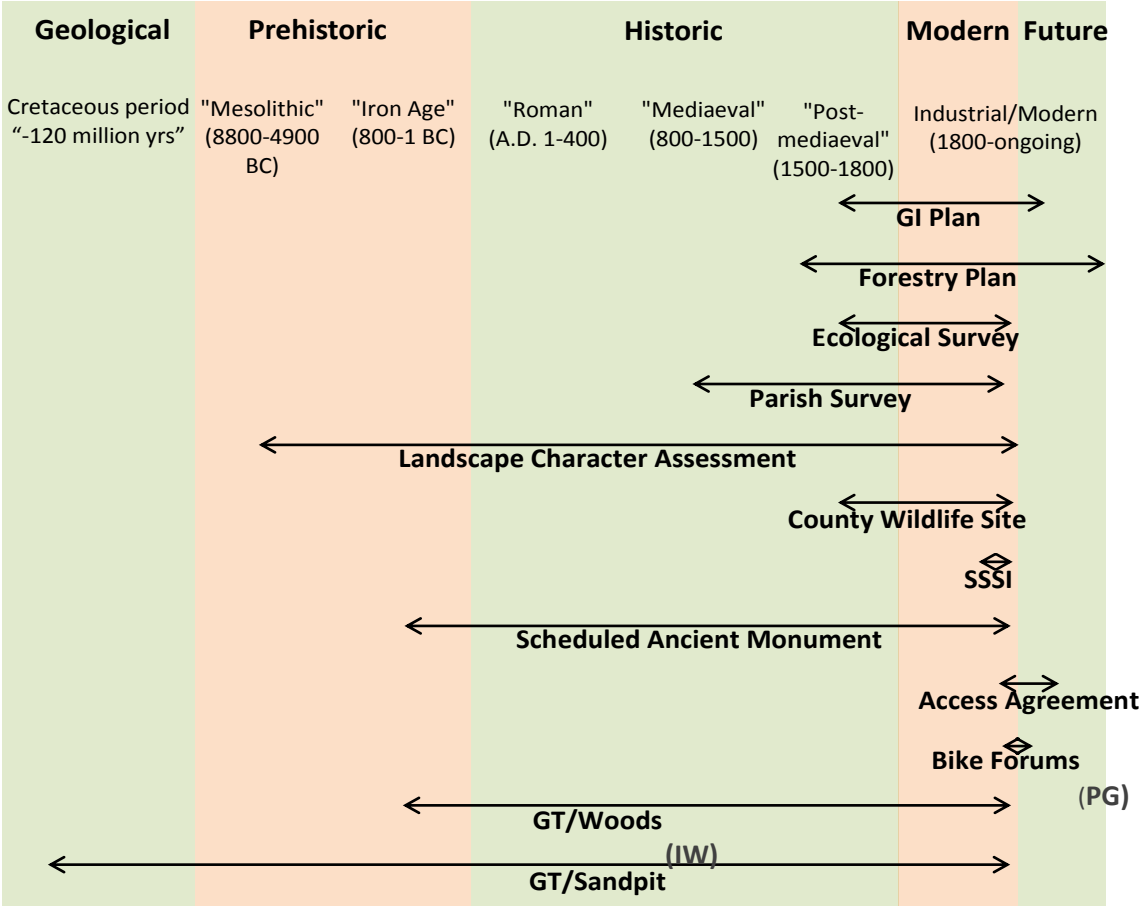

Figure 9:2: Graphic to show the use of 'time' in constructions of the discursive object

As such, the time period to be considered when determining psycho-social and cultural value is thus observed to be negotiable, and relates to the purpose for which the document was created. Historic information is used to support the purpose of each document, and projected futures can provide contextual imagery to support social action.

9.3 Discourses inherent to constructions

Following on from previous analyses a number of wider discourses were observed to be implicit in texts (Table 9:6).

Conservation and public benefits were common themes in these constructions, being apparent in half the texts selected for analysis. Law and order was a regular theme, notably occurring in the constructions of those with responsibility for the site. Less common themes included those of future planning, poverty/affluence, social class,

ecosystem complexity and historical knowledge. These discourses are less main stream and indicate specialist knowledge.

Table 9:6: Wider discourses identified in corpus documents.

Document	**Wider discourses**												
	Conservation	Social change	Outdoor recreation	Law & order	Future planning	Landscape change	Managing risk	Poverty/affluence	Social class	Value of nature	Ecosystem complexity	Historical knowledge	Public benefit
Access agreement		●	●	●	●		●	●					●
IW			●	●									
CWS	●									●	●		
Forest plan				●	●	●	●	●	●				
Ecology Survey	●									●	●		
Parish survey		●				●		●	●			●	
LCA	●	●				●							●
GI plan		●	●	●	●								●
SSSI	●			●			●			●			●
SAM	●											●	
Bike forums			●				●						●
Aspley Sandpit	●											●	●

In addition, phenomena which corresponded with the cultural service concept (as per Alcamo, 2003; see Table 2:9) were identified within documents, i.e. recreation (5 documents), cultural heritage (8 documents), science, knowledge, and/or education (8 documents), social relations (2 documents), sense of place (3 documents) and aesthetic values (2 documents) (Table 9:7)

Table 9:7 Phenomena within documents which correspond with cultural services

Acronym	Phenomena related to cultural services
AA	Recreation
IW	Recreation, cultural heritage and scientific value.
CWS	Science and education
FP	Recreation, cultural heritage and science.
ES	Cultural heritage, knowledge systems and science.
PS	Cultural diversity, cultural heritage, knowledge systems and social relations
LCA	Cultural heritage, sense of place, aesthetic values and inspiration.
GIP	Recreation, cultural heritage, and sense of place.
SSSI	Knowledge systems and education values
SAM	Cultural heritage and education values
PG	Recreation and social relations.
SP	Cultural heritage, sense of place, aesthetic value and education values

9.4 How documents position their authors

This section looks at how discourse inherent to texts construct the subject (i.e. the author/ publisher) and what positions are made available to the subject within specific networks of meaning.

In the Access Agreement document, the subject is presented as forward thinking, acting in the 'public good', but conversely being under pressure from public and political stakeholders. It indicates there is a vast gap in understanding between the different subjects' constructions of the site, which necessitates a sensitive approach to negotiations. The range of options contained in the document offered the landowner choices in action. This puts the subject in a position of waiting for a response before being able to engage in further negotiation with the landowner, whilst also being able to show other stakeholders that actions have been taken, and discussions are on-going

In the Information Webpage, the subject is presented as having authority, and possibilities for action include those which place restrictions on certain types of public behaviour. The overall sense from this construction is that the public are not overtly encouraged to access this site, but for those who do choose to access the site a strong code of conduct is in place which is governed by the Greensand Trust.

In the County Wildlife Site document, the subject is presented as a conservationist and one with expert ecological knowledge. This would enable the subject to have a considerable amount of power and respected opinion in this very specific context. The impersonal approach, omission of authorship, and almost complete provision of 'factual' (empirical) information removes the notion of subjective opinion, and positions this document as an expertly identified representation of 'reality'. It is therefore consists of a translation of ecological artefacts into discursive resources.

In the Forestry Plan, the subject is presented as being able to balance the requirements of the higher body (the Forestry Commission) with the targets set by his position. This appears very much to be orientated towards the manager's perceived requirements of his employer. However, it is also evident that the subject considers the amalgamation of forestry with conservation to be too difficult to consider, inadvertently presenting him as someone unable to deal with complexity. It also presents the subject as a defender of estate resources, someone who defends the land from the invading public. From this position, actions which are required to discourage certain types of public use, and which maximise productivity levels (possibly at the expense of ecological integrity) are sanctioned through the importance of the needs of the landowning family. Thus practices such as the use of biosolids, clear-felling (throughout the year); and the reluctance to follow recommended SSSI management practices (such as grazing) are in keeping, and are supportive of estate primarily economic objectives.

In the Ecological Survey, the subject is presented as being a knowledgeable expert. The account attempts to construct the object in such a way as it is worthy of protection. The action orientation enabled by this construction is one of conservation, but the extensiveness of this is limited by the recognition that the areas' primary land-use is commercial forestry. . Nonetheless, possibilities for action which are mapped out by this document are limited, since it is for the report commissioners (Bedford Estate) to implement recommendations. Since the conclusions of this survey are (for the most part) superseded by the objectives of the Forestry Plan, the authors' power to instigate action is limited. It is however noticeable that a recommendation for designation of Wavendon Wood as ancient semi-natural woodlands is upheld by the Forestry Plan.

In the Parish Survey, the subject is presented as having value through possession of specialist knowledge which is of public benefit. This warrants the use of public funds for the undertaking of a survey such as this. However the exhaustive nature of the survey limits the future need for repetition. As such, the assets provided by a

Department such as this, once created, are perceived to require little further attention; thus becoming a static resource rather than an active on-going research process.

In the Landscape Character Assessment, the subject is presented as valuing both historic human enterprise, and nature; but nature in the context of anthropocentric development. Extensive presentation of the methodology for the assessment lends credibility to this account, and as such the expert nature of the assessment makes it suitable for policy purposes. The intended future uses of the construction are not entirely clear however.

In the Green Infrastructure Plan, the subject is presented as successfully fulfilling targets set by Central Government. Numerous listed features and graphic displays showing different elements which the wood provides (in terms of history, habitat and recreation) present the parish as having an abundance of green infrastructure. Through the plan's "response to recommendations included in the Aspley Guise Parish Plan", the parish council is also presented as being an efficient provider of public goods (specifically green infrastructure), and as being effective through its awareness of diverse public needs. This subject position ensures that future action (in the form of projects and action plans) will be seen as being 'for the greater good' of local people, whilst also being in harmony with higher levels of authority (i.e. government). It also sets out the parish's position in relation to nearby urban growth; this being that parish GI is being utilised by people from outside the parish, and that more financial resources are required as a result.

In the SSSI document, the subject is presented as having an advanced ecological knowledge, as being thorough (indicated through reference to recalculation and re-presentation activities), and as being well-connected, through the pervading presence of the SSSI certification in other documents and maps. The subject is also perceived to have a certain amount of power, being a national body, and as indicated by legal terminology used. From this subject position, the power to preserve species, and punish (through legal action) damage done to the environment is made explicit, as is the importance of monitoring special natural areas.

In the Scheduled Ancient Monument citation, the subject is presented as a knowledgeable historian, who places importance on the discovery of new knowledge in relation to ancient cultures, and one who is well versed in a particular methodological approach. Potential actions which are mapped out by this construction are thus of a professional and highly educated nature, and which require specialist knowledge.

In the Playground document, the subjects are presented to be knowledgeable 'veteran' mountain bikers, who are 'leaders' within their group, and who have elected to share their knowledge in a public (online) capacity. The 'marketing' of the site in this way encourages future visits, coordinated group activities, and further information sharing.

In the Sandpit document, the subject is presented as an educator, knowledgeable in both local history and natural history; and as a conservationist organisation with a primary concern for the protection of wildlife and the preservation of landscape features such as the sandpit. Future action which is mapped out by this construction supports the preservation of the area given its value as an indicator of past social practices, the habitat provided to wildlife, the insight into geological processes, and its consequential educational value.

9.5 Practices and social action

This section systematically explores the ways discursive constructions and subject positions open or close down opportunities for action. Analysis and comparison of the documents suggests that there is tension in some of the documents with regard to i) the intended audience, and ii) ownership.

Comparison of the documents suggests that some authors may have experienced pressure to describe the site in a certain way. The Forestry Plan for example, needed to provide a construction which fulfilled the criteria set by the Forestry Commission and the objectives of the landowning estate. The Information Webpage on Aspley Woods provides limited marketing for the site, whilst making every effort to ensure public behaviour on-site was of the desired nature. This is likely to be connected to the stipulation of the landowning estate to restrict publication of the site in order to reduce public use. The Access Agreement was written with the views of the landowner, users, and policy practitioners in mind; thus this construction has to balance the interests of these stakeholders. On-going issues of contention include the control of public behaviour, and the control/ 'punishment' of unacceptable forms of behaviour. Designation and legislation to protect certain features of the natural and historic environment reveal a belief that human behaviour may endanger these features, and so special measures are needed to ensure their conservation.

Tensions are evident both in the historic development of the site, its current use, and potential future human impact. Historically, resistance to enclosure, the eviction of squatters and even the circumstances which led to the Bedford Estate control of the land (i.e. the dissolution of the monasteries, and the conversion of Woburn Abbey

from a holy institution to a duchy estate) have shown tension over this site to be an enduring feature. Within the 12 documents, the issue of ownership is a fluid concept. Ownership of this land has changed throughout time, due to its status as open land, enclosed land, common land and privately owned land. It has been 'squatted' upon, and leased to a private quarry contractor. Whereas *legally* the Bedford Estate is the current owner of the land comprising the discursive object, it does not own the rights to the 'experiences' to be had there, nor the information which relates to it. In a way, the parish council 'owns' the site as part of its GI portfolio. The bikers 'own' the site as it is their recreational facility. The Greensand Trust 'own' the site as it is one of the 'services' their organisation provides (as indicated by their website). Natural England 'owns' the portion of the site known as Danesborough Hillfort as it is one of their scheduled ancient monuments. Thus there is a divide between the tangible ownership of a site, and the ownership of its intangible features which appear to be common property.

It has been shown that constructions may be invoked to initiate social action. However, also significant is what was *not* said. Literary accounts included in the analysis featured aspects of the land which were perceived as 'valuable', and evidently the document authors had access to the necessary discursive resources to construct this value. These land features were thus made accessible (through language) to receiving social action. However, aspects of the land *not* represented by language, or alternatively, not represented by socially *powerful* discursive resources would not receive such fervent social action.

9.5.1 Features, discourses and social action

This analysis of site documents identified seven types of social action, these being land planning, fulfilment of policy objectives, legal protection, securing funding, monitoring, informing the public, and controlling public behaviour (Table 9:8). There appears to be a marked difference between the potential of different discourses to inspire social action. Constructions of the study site which appeared to have the greatest potential for social action were those which had legal status (SSSI and SAM). Notably both these documents employed almost entirely expert terminology in their constructions, possibly revealing a connection between expert discourse and *power*. Documents which used lay terminology (e.g. LCA and GI) appeared to have less clarity of purpose, and subsequently diluted power to inspire social action. Other constructions which were for public information (e.g. IW and SP) relied on discursive resources available in the public domain, and as such, had limited potential for social action.

Table 9:8 Types of social action identified in corpus documents (see earlier tables for explanation of acronyms)

	Type of social action						
	Land planning	Policy objectives	Legal protection	Secure funding	Monitoring	Public information	Public behaviour
AA		●	●	●			
IW						●	●
CWS	●	●			●		
FP	●			●			
ES							
PS					●	●	
LCA	●				●		
GI	●	●					
SSSI	●		●		●		
SAM	●		●		●		
PG						●	
SP						●	●

The examined documents, all relating to cultural services, ranged from common discourse to expert discourse. It appears that expert discourses could have greater power for social action through the legal system. However it can be argued that cultural services characterisation should ideally reflect a wide spectrum of human experience, not just the highly educated and professional. Inclusion of layperson views in evaluation exercises would rely on the availability of suitable common discourses and discursive resources in the public domain. Questions are raised over how the capability of the English language to describe the complex multi-faceted phenomena inherent to cultural services. This is noted to be important, since without these discursive resources the perspectives of certain members of society may be marginalised, cultural services may be undervalued, and those engaged in the conservation of ecosystems may have weakened power to take social action.

9.5.2 Graphics and social action

All documents except 1 (the Ecological Survey) used graphics to construct the discursive object (12.3A.9.8). Those constructions which were focused clearly on social action tended to make greater use of graphics than those that did not (Table 9:9). Documents associated with land planning, monitoring and policy making (i.e. CWS, GI, SSSI, and SAM) utilised highly accurate, GIS driven Ordnance Survey maps. The Forestry Plan also utilised precise and highly detailed GIS overlays, to assist with the objective of maximising the productive functions of the site. Some documents (FP, PS, and SP) included sketches which illustrated certain aspects of (tangible) features used in the construction. Logos were in evidence in constructions from organisations closely involved in the management of the area, i.e. the Bedford Estate (FP), Greensand Trust (SP and IW) and parish council (GI).

Table 9:9 Types of graphics identified in corpus documents

	Type of social action						
	Land planning	Policy objectives	Legal protection	Secure funding	Monitoring	Public information	Public behaviour
AA		T	T	T			
IW						M, P, L	M, P, L
CWS	OS, GIS	OS, GIS			OS, GIS		
FP	OS, GIS, T, D, S, L			OS, GIS, T, D, S, L			
ES							
GIP	OS, GIS, D, P, L	OS, GIS, D, P, L					
PS					M, S	M, S	
LCA	M, P				M, P		
SSSI	OS		OS		OS		
SAM	OS		OS		OS		
PGs						P	
SP						M, S, P, L	M, S, P, L

OS: OS map; GIS: Geographical Information System Overlay; M: Map not to scale; T: Table; D: Diagram; P: Photo; S: Sketch; L: Logos

All the constructions created with the intention of guiding land planning used OS maps, with the exception of the LCA document. Use of graphics by the LCA followed the pattern more associated with public information, i.e. photos and not-to-scale maps. This raises a question over the capacity of the LCA to guide planning.

Constructions orientated towards the fulfilment of policy objectives used 'to-scale' graphics (OS maps) and those with high level of reproductive accuracy (GIS overlays, photographs), and could thus 'map' the textual constructions onto the geospatial area. This was with the exclusion of the AA document, which did not use any maps at all, and included only tables of financial data and funding options. This construction, created for stakeholders with a high level of familiarity with the site, and had as its primary intended social action the procurement of funding to continue public access. Since procurement of additional funding would ensure continued public access, and this access would enable the fulfilment of policy objectives, this was perceived to be a secondary purpose of the document, and could explain the omission of maps.

Documents which had the intended social action of ensuring legal protection for some aspects of the site (SSSI and SAM) both used OS maps. No other graphics were provided to 'clutter' these constructions, which were presented as factual scientific accounts, devoid of artistic expression. Similarly, constructions which orientated towards social action regarding the general public (information or behaviour control) used 'softer' graphics, such as maps not to scale, photos, sketches, and logos. The two documents orientated towards the procurement of funding (FP and AA) both used tabulated information, indicating there may be a connection between this form of graphic and this intended social action. All constructions orientated towards monitoring/ recording used maps: the CWS, SAM and SSSI used OS maps, whilst the LCA and PS used not-to-scale maps. It is put forward that the level of accuracy is related to the power to take social action, with higher power being attributed to higher accuracy.

9.6 Synthesis

This chapter explored documents which provided various constructions of the study site. The study site was identified in documents as a 'discursive object', and an analysis undertaken of 'discursive resources' used to describe and emphasise various features of the site. Due to time restrictions it was not possible to analyse the interactions and information flows between documents, although these were observed to be a potential point of interest for future study.

Efforts to identify the discursive object showed that names and locations provided for the study site (or portions of this) were variable. Names attributed to the discursive object were found to differ between documents, and also diverged from the formalised naming system attributed by Ordnance Survey maps. This finding has ramifications for future cultural services studies, since whilst information 'unlocked' by formal names is accessible through databases such as magic.co.uk, information sources using informal names could potentially be missed by researchers. Examples of this include the online mountain biking forum which provided four different names for the discursive object, and Parish Survey information which was filed under a box number and not digitised.

It was noted that quantitative information and graphics (such as GIS maps) gave the highest amount of 'accuracy' (in terms of geospatial location and land mass) for attaching discursive constructions to specific land forms. However, it was observed that spatial positioning systems are socially constructed ways of deriving meaning from numerical information. 'Location' was often found to be situated in relation to social institutions, and geospatial boundaries (attributed to discursive objects) constructed by documents and thus subject to change. Subsequently, whilst defined locations are valid objects of study for cultural services research, these should be considered as socially constructed artefacts rather than objectively determined entities. It is also surmised that *names* of locations, whilst not accurate spatially, nonetheless give access to layers of meaning and cultural significance not provided by quantitative information.

Discursive constructions were likewise found to set temporal boundaries in a similar way to geospatial ones. The use of socially constructed reference points was evident, such as periods (e.g. Iron Age), terms (e.g. 'ancient') and specific dates. It was observed that widened timespans (held to be of relevance to the discursive object) increased the amount of detail and perceptual 'size' of the object taken into account. It was also noted that documents written in the present tense but created over 10 years ago (e.g. CWS, SSSI, SAM, PS) are still valid for legislation and policy today. As such, the age of these particular discursive constructions have not (to date) impacted upon their ability to influence current social action.

The physical features discursively constructed by documents also affected the link between scale/level of detail and social action. Designation documents which had legislative power provided the highest level of detail at the smallest scale, and used the highest amount of expert terminology (SSSI, SAM). Further consideration of highly detailed 'expert' accounts of the site as 'playground' (PG) show that these too were able to influence legislative protection of the site through the Access Agreement (AA).

In addition to the contextualised sense of rarity invoked by these documents, the concentration of scale employed by constructions arguably heightened the value of relevant zones by increasing the *detail* and *amount* of significant features. This relationship between legislative processes and expert *terminology* thus shows that perceptions of value and powerful social actions can be directly related to expert-driven discursive resources.

References to social and ecological processes were observed to assist the presentation of 'valuable' features for management or conservation purposes, and certain types of information were found to be directly linked to specific forms of social action. Expert terminology and formal graphics (such as GIS) appear to be powerful in relation to legislation and planning. Quantitative information was relevant for the procurement of financial resources. Qualitative descriptions using 'lay' terms, and informal graphics (such as sketches and logos) were found to be powerful tools for public information. This perspective has also highlighted the significance of what was *not* said. Literary accounts included in the analysis featured aspects of the land which were perceived as 'valuable', and evidently the document authors had access to the necessary discursive resources to construct this value. These land features were thus made accessible (through language) to receiving social action. However, aspects of the land *not* represented by language, or alternatively, not represented by socially *powerful* discursive resources would not receive such fervent social action.

Various types of value were exhibited by documents, such as utilitarian value (FP), intrinsic value (ES, CWS), socio-cultural value (AA, GI, SSSI, LCA) and heritage value (SP, PS, SAM). Observation of wider discourses and positions made available by constructions revealed that there appeared to be pressure on authors to construct the discursive object in certain ways. Subjectivity was not encouraged; indeed, the deployment of frameworks of meaning and specific terminology presented a sense of objectivity which gave increased strength to constructions. Constructions were however, contextualised, by the trends prevalent at the time of document creation. These contextualised perspectives persist and have currency through documents which are now 'static resources', i.e. accounts which are referred to but are not updated (SSSI, SAM, CWS, PS). Notably however, despite the power vested in expert opinion, in many cases (AA, ES, SSSI, SAM) the ultimate power for social action was situated with the landowners' constructions of the area (FP).

Subsequently, although corpus documents related to the study site, and referred to areas which exist in 'geospatial reality', the reality presented was purposively constructed and formed through discursive resources. Whilst elements of the cultural service concept were also identified in these documents, decisions over

boundary definition, time periods, and emphasis on the description of particular features related to the type of social action desiring initiation. Therefore, these discursive 'cultural service' resources were purposeful, and functioned to initiate social action, made possible through the creation and dissemination of documents.

As such, this analysis has shown that, at a social and institutional level, cultural services *are* discursive resources, because these make phenomena sharable between individuals. Assessors, authors and publishers responsible for creating and disseminating documents do so within established frameworks of language, structure and understanding, in order to make documents functional. Thus, knowledge presented by discursive resources is socially constructed from the outset. From this, we can conclude that cultural services are far from being a neutral and objective phenomena. They are typified by discursive resources which are employed to invoke their conceptual essence in various forms. The concepts brought forth are as a direct result of the particular discursive resources used, according to the ultimate intended social action. Since cultural services *are* discursive resources, then to value or assess them is to perform a valuation or assessment exercise on a socially constructed discourse of our own making: one which has flexible parameters, definitions, and weightings related to intended social action. Subsequently, it is proposed that the richness of discursive resources which relate to experience and assessment of the natural environment, and the cultural context which prioritises certain discursive constructions will, arguably, correlate with the perceived value of that environment.

9.7 Chapter summary

Cultural services are perpetuated through written and graphic accounts of sites such as Aspley Woods and Heaths. These socially constructed accounts are assembled from 'discursive resources', and are important since influence the portrayal of cultural services at an institutional level.

Discursive resources reflect established frameworks of language, structure and understanding. Powerful social actions (such as legislation) tend by be driven by expert discourses and quantitative information systems.

However, qualitative descriptions, colloquial location names and other informal information sources can give access to layers of meaning and cultural significance not provided by expert and quantitative resources.

Discursive resources which reflect fine scale analyses and widened temporal boundaries can heighten the perceived value of relevant zones by increasing the *detail* and *amount* of significant features.

It is important to recognise that, at a social and institutional level, cultural services *are* discursive resources. This is necessary since valuation and assessment exercises reflect the richness of discursive resources available to individuals, and the cultural contexts which prioritise particular discursive constructions.

10 Cultural service as personal discourse

It has been proposed that, at a social and institutional level, cultural services *are* discursive resources. This was considered to be an important finding, since indicated that ecosystem service valuation and assessment exercises are contextual social practices which are dependent upon the richness of discursive resources available to individuals. Further insight into this finding is here provided, through an analysis of individual discourses relating to the study-site. Transcripts from interviews with four individuals (each with personal connections to the study site) have been explored to identify the discursive resources used in constructions of 'the wood' (i.e. Aspley Woods and Heaths). Using the Foucauldian discourse method detailed in Section 3.3.5, transcripts have been examined to reveal the interpretative context for interviewees' perspectives, the features of the wood and discourses involved in constructions, how interviewees are positioned by their constructions, and what experiences and social actions are subsequently made available. Findings are then discussed in the context of the subcategorised cultural service concept. This analytic approach generated a large amount of textual data, and whilst substantial, its inclusion is considered necessary since provides critical insights on the development of research findings.

10.1 Pat

10.1.1 Background information

Pat has lived with her husband on Woodside (bordering Aspley Woods) for over 30 years. Her home is on the Western edge of the study site, and the wood *"… literally start the other side of Woodside, where we are*". She has a woodland view from the front windows of both storeys of her house. She has owned dogs for 30 years, and walks them daily in the wood. It was noted that, throughout the interview, Pat referred to a portion of Aspley Woods as '*ours*', e.g. "*…our section of the woodland… our cuckoos*". When asked about this [Q. when you say your particular section, where do you mean?] she replied, "*I mean the errr the part which is now open, open access. You know, where the public are allowed in now from Woodside, from the Woodside entrance, all that part, going down to, well Mermaid's Pond really. That, that sort of area.*" Thus it is surmised that Pat feels a sense of ownership of this section of the site through her proximity and close daily contact with the wood, made possible by the woodland entrance on her road, and the access agreement.

Pat is the secretary of Aspley Guise P3 group. P3 stands for 'People, Projects and Partnerships' and is a local authority aided scheme which aims to improve access to

the countryside by maintaining and improving the condition of local footpaths (including but not exclusive to those in the wood). This is a voluntary position, and Pat's husband is chairman of the group. The group have recently raised funds to create a leaflet entitled 'enjoy and explore Aspley Guise', which contains a hand drawn map (12.3A.10), and is aimed at "… *walkers, it's for riders, it's for anybody that enjoyed the countryside. Also for dog walkers. Um, ramblers. And it also links in with other, with Ordnance Survey maps for the surrounding area*." Pat's walks in the wood are confined to the path network, as Pat maintains that the access agreement only applies "*to the paths*", thus any characteristics explored are those accessible from the path network. Pat is a practicing Catholic and attends the local church in the village. She attended university as a mature student (majoring in history) then took a voluntary position as an archivist at Bletchley Park, an important site for wartime activities in World War II which is now a museum. She is concerned about social change in the local community, such as the growth of Milton Keynes and its effect on rural communities.

Consideration of the material provided by the interview with this interviewee showed that the 'discursive object' (i.e. the wood) was mentioned directly and indirectly in four ways; as i) real woodland ii) as a demonstrator of change; iii) as a sense of spiritual affinity, and iv) as a sense of history. However, there was no clean divide between these categories, which manifested as a series of overlapping themes, related to the personal interests and circumstances presented by this interviewee.

10.1.2 The wood as real woodland

Pat indicated that she considered Aspley Woods and Heaths to be a place with special characteristics. When asked about this, [Q. Is there something that you notice particularly works well (in these woods) as opposed to other places?] she advised that, "…*well, yes, er- I suppose it's because I am aware that part of this is very ancient woodland… I'm not talking about the fir plantations, but the rest of it*". Here Pat refers to '*ancient woodland'* which presents as a strip around the outer edge of Aspley Woods. By specifying she does not relate to the coniferous plantation, she infers that the important features are the naturally regenerating *understory* and *deciduous trees*, although the commercial nature of the latter is not highlighted. The difference between Pat's impression of the character of plantation wood in contrast to 'wild' settings was revealed through a reference made to parks, "...*public parks don't do it. Eh, anywhere where municipal flowerbeds have been set down with that appalling regularity you know, one primula and then one geranium and that – (it) doesn't work. Get a child out in the real world, in the real forest; in the real woodland er you give it a taste of what life was like centuries ago when cities were few and far between*." Here

public parks represent urbanised cities, and are situated in relation to *real* woodland which represents historic society. The 'appalling' regularity of 'municipal' planting is presented as 'unreal' (and to be avoided), whilst (non- plantation) random, wild forests are 'real' and reflect the past.

In relation to Aspley Woods being 'real woodland', the interviewee was asked [Q. How would you describe the 'real' woodland? What would be the characteristics?]. She replied, "*Er, um, obviously er the mixture of trees, you know, the different varieties. Er, the age of the trees. Er, the glades, that - I don't know, that lovely feeling of deep green, I can't describe it any other way. There is that magic about it. Especially on the days when it's very quiet in there. You don't hear much traffic once you, you know the trees will muffle the sound when they're in full leaf. Even the M1 which is only a mile and a half away is er, is muffled by this wonderful green blanket. And of course, seeing how it encourages the, the wildlife, the birds especially, the birdsong first thing in the morning, although ih, it's, that is changing over the years as well sadly. But our cuckoos were back this year, thank goodness*." Here then, the importance of 'diversity' is illustrated through the reference to the *mixture* of trees, different *varieties*, and the *glades* which provide significant alterations in sensory experience. Sound is presented as a feature of 'real woodland', both as *birdsong*, and as *quiet.* Trees here are the defining feature, since these *encourage* birds (making birdsong), and the tree cover *muffles* sounds of motorway traffic when the trees are 'in full leaf'. We are alerted to a type of verbal synaesthesia which has a 'magical' quality to it, through the reference to a 'feeling of deep green'; this being a mix of visual sensation (*colour*) and physical or emotional feeling,

Pat referred to how she collects woodland materials. When asked [Q. Does it take you back to your childhood?], Pat replied, "*Very much so, you know, you're aware of that. Yes. And again, when we talk about tactile experiences that some of the, the autumn fruits you know, the, the fir cones of which I collect a fresh bag every year. Take er, take them home and spray them and they end up on the Christmas tree. And, and um you know, oak apples and acorns and all these other wild fruits. Um, er, all an important part of, of being at one with your environment and appreciating it. Yes."* The collection of woodland materials is presented in a way to imply a symbolic significance connected to the continuity of family traditions, and an almost ritualistic display of gratitude for the gathered forest fruits. The interviewee makes explicit reference to 'tactile experience', gained from touching and collecting autumn fruits e.g. blackberries, fir cones, oak apples, and acorns. These physical actions are associated by the interviewee with 'being at one' (a holistic state) with her environment implying ownership and 'appreciating' this. A further comment was made in response to a question on tactile experience later in the interview; whereby

Pat advised that, "…*one of the best tactile experiences is, is actually handling bark, er which has got to be one of the most interesting, er natural textures that there is and just every now and again examining you know, these wonderful knot holes and er things that have decided to grow on trees*." This tactile experience was linked to 'things that have decided to grow on trees', an example of anthropomorphism; the attribution of human characteristics (the decision to do something, i.e. grow) to a non-human entity (i.e. 'things' that grow on trees).

An email received from Pat prior to the interview included the use of an interesting term, 'intrinsic social value'. When asked about this [Q. In your email you mentioned the phrase 'intrinsic social value'. I'm interested to know where you've got that term from?] the interviewee advised this phrase was, "*Just out of my head. I was just thinking that it's, it sums up what I feel about the woodland. That it has that. It has the ability, insofar as any inanimate object has the ability, to encourage people to talk to you, to interact, er to help you separate the dogs.* [LAUGHS] *You know, there is that - but it's, it's born of a sort of natural er, er thing. It, it's, it's not forced so that those conversations are perfectly natural. And then they seem even more so within those surroundings."* The phrase 'intrinsic social value' is related to academic discourse, and Pat acquired this phrase without knowing the source. The term 'sums up' what the interviewee *feels* about the woodland; that the *surroundings* have the 'ability' to encourage people to talk. This is a further example of anthropomorphism, whereby the wood is given a benevolent character which can direct behaviour. The interviewee then resituates her position by giving a contrasting perspective- that the wood is an *inanimate object.* Here then, the act of personification is reversed, and the 'natural talk', which is 'not forced', is presented as occurring spontaneously, as an 'intrinsic quality' of an impassive environment.

When probed further on 'naturally occurring conversations' [Q. can you say what it is about the surroundings that makes (those conversations) happen?] Pat advised that, "*It could be familiarity; it could be the sheer beauty of the surroundings. And as you know, parts of, of the wood are really stunning. Um, and often almost reduce me to tears at certain times of the year. I can stand at the top of that escarpment over Mermaid's Pond and I can look for, look towards er the church at Woburn, over towards the abbey, although you can't see it now. Years ago you could. The trees have grown now. And I've, I get a deep feeling of the sense of beauty and peace*." A combination of discursive features are presented here which construct the concept of the wood as an entity to promote naturally occurring conversations. First we are offered the concept of 'familiarity'; relatedness between repeated experience and current behaviour. The interviewee then advises that the experience of 'sheer beauty', and particularly *elevated landscape views* result in her feeling 'stunned'. An

example of an emotional release is provided, that of being 'almost reduced to tears', invoking an overwhelming quality to the experience of the woodland. The words used depict the experience of the surroundings as one which is beyond sensation, given the 'deep feeling *of the sense'* of beauty and peace, similar to the 'feeling of deep green'.

When asked about interesting experiences in the wood, the interviewee divulged that, "*Well over the years, it's usually the, the common place, like coming face to face with a deer and neither of us know what to do. … occasionally, you know, it, it's this chance encounter with, with nature which is really such a pleasure. It's like coming across a rabbit who was eating, and just turns round, looks at you and carries on eating. Er - you suddenly feel very, very sort of oh I am part of this*." Coming face to face with a deer is presented as being commonplace, whereas the undisturbed rabbit is rare, and signifies being 'part of this' rather than separate. Continuing from this [Q. How do you feel if you see a deer or a rabbit and you manage to pass them without creating too much disturbance? How does it make you feel?] Pat responded "*Er, I, I feel that we're both at peace with the world and er we, we've got our own business. Um, and it's rath, it's, it's rather comforting to think that I haven't disturbed it, and I haven't alarmed it and it's little heart isn't going like this [taps]. Yes, if there is, it's that comfortable feeling really that we can coexist*." This reveals that Pats perception of coexistence includes behavioural as well as environmental alignment. When probed further [Q. How do you feel if you see another animal and you know that you're aware of each other?] the interviewee said, "*I'll try not to alarm them. Um, I almost send them thought messages, you know - um, it sounds ridiculous, er to say it. You don't say to a deer, look you've got nothing to worry about. But mentally I'm saying, I'm not a threat. You carry on doing what you're doing*". This hints at something not usually discussed in Western society (in terms of humans), a 'sixth sense', or instinct that allows species to communicate with each other. To be able to 'almost send them thought messages' indicates a form of telepathy, giving off something the animal can pick up on which is a belief in some indigenous cultures.

The features of the discursive object (i.e. the wood) which are invoked by Pat in this construction (labelled the 'real woodland') are summarised in Table 10:1.

Table 10:1: Summarised construction of the wood as 'real woodland'

Analytic feature	Finding
Title given to this construction	The wood as 'real' woodland
Features relevant to this construction of the wood	Ancient deciduous woodland and understory, ecological diversity, wildlife, sound (quiet, birdsong), tactile sensations, wild fruits and other collectable resources, beauty, elevation
Discourses which are invoked	Landscape management, intrinsic social value, 'peace and quiet', anthropomorphism, telepathic communication with animals, coexistence
Pat's interpretative context	Proximity to the wood (i.e. familiarity and depth of experience), childhood experience of woods
Pat's subjective experience	A sense of beauty and peace, appreciation, relief and emotional release, synaesthesia
How this construction positions Pat	Someone who can recall a high level of detail about wood and its inhabitants, and who cares about wildlife and people
Possibilities for action which this construction allows Pat	To continue her current activities (and enjoyment derived from these) in the knowledge she is a knowledgeable and considerate visitor to the wood

10.1.3 The wood as demonstrator of change

The wood represents a monitor of change to Pat. She advised that, "*It's very much part of our lives, because it, it-it-it demonstrates the passing of the seasons to us, insofar as we can still say that we have 4 seasons in England. That is now debatable. Living that close to the countryside and to woodland, we are beginning to see quite dramatic changes over a 30 year period… we are now convinced, although we were sceptical at times, er in the early days of climate change*". Here Pat explains that the wood 'demonstrates' and thus provides 'evidence' with which to evaluate information (social discourse) in circulation (i.e. climate change). This evidence has enabled them (as a couple) to make up their own minds. This was attributed to being in close proximity to the wood over a long period. The inference given here is that others without this close proximity to the wood may not have access to 'demonstrative' evidence on issues like climate change, and may therefore be sceptical. This quotation reveals that information gained from the wood is breaking down the interviewee's view of conventional seasons. Here Pat talks as a couple rather than as an individual ('our lives', demonstrates to 'us', 'we' are now convinced, 'we' were sceptical), indicating the importance of the wood as an indicator of change to the community and to her family.

Variations in woodland cycles were presented as a further indicator of change, e.g. "*…the fact we can see the leaves are coming off the trees at different times. And the fruit on the trees for example, this year the blackberries are very small, but there are more of them. Um. It, it's these little things that if, if you're aware of your environment you could begin to notice over a period of time.*" The leaves and fruit provide evidence, almost in the form of a personalised longitudinal study. The key to interpreting this evidence is the interviewee's cognizance, being 'aware of your environment' and shows that Pat looks at her surroundings to provide meaning. Pat also found evidence by observing changes to Mermaid's Pond as explained, *"…we come back to this business about er, er less rainfall, that this over the years has just become a sludgy, er-er-er-er, er you know pit of muddy water. There is a bit of water in the middle. But the trees have been allowed, the saplings have been allowed to grow up in it…years ago you, you could see more water and less trees, let's put it like that*". The description of the pond developing into a 'pit of muddy water' depicts an unpleasant environment, with trees not in their proper place, and a gap in care for this woodland feature (as they've been 'allowed' to do this), changes are attributed to there being 'less rainfall' over the years.

A form of social change (urban development) was presented by Pat in relation to a guided P3 walk, the 'beating of the bounds' (detailed below). This walk is organised every 3 years, said to be, "… *an ideal time because then you can check on various changes. Er, you've got to watch people, sometimes. Um, er, er there, there are - there's an element in our society that doesn't think old footpaths and bridleways matter that much…encroachment is quite a serious problem. You get developers who er sometimes don't like where footpaths are. And this is what you've got to watch*." Walking around the village and in the wood enables Pat (and the others in her group) to 'keep watch' on the territory, and prevent territory loss. At a different point in the interview, Pat also explained that "*I, I fear that the emphasis placed on the importance of keeping footpaths and bridleways open, will become less important*", and that she is *"… concerned about the growth of Milton Keynes. And the gradual er, erosion of the old village lines. I regard this as an essential green lung*." For this interviewee, the wood and paths are important both in relation to their ability to protect the 'old village' and ways of life reflected through rights of way, and to provide *essential* needs for existence (air). The responsibility for maintenance of natural heritage is also attributed to the landowning estate, since "…*what's protecting us from Milton Keynes and all the overdevelopment is the fact that we have this great estate. And although people might resent, you know, the aristocratic er oh, occupation of these great swathes, they actually protect villages from development*". Thus her way of life is protected by the wood as a *territory*, owned and occupied by the 'great estate'.

Further examples of change are displayed through references to cycles, such as the altering seasonal patterns "…*you cannot say spring, summer, autumn and winter anymore",* and forestry cycles, *"…yes, there's replanting going on all the time*." The changes reflected by the wood also inspire comments which display a fear of loss for the interviewee [Q. Does it (climate change) make you feel concerned?] "*Yes. Oh yes. Because er, trees need water, and trees need a lot of water. And, er if we are getting drier we are going to lose the trees that need the most. They will be the first to go*." Here there is a clear link made between climate change, water shortages, and trees, which 'we will lose'. It is surmised the interviewee would feel the loss of trees in this woodland through drought as a personal loss, in comparison to the loss of trees through forestry which is well accepted since these are replanted.

The features of the discursive object (i.e. the wood) which are invoked by Pat in this construction (labelled 'demonstrator of change') are summarised in Table 10:2.

Table 10:2: Summarised construction of the wood as a 'demonstrator of change'

Analytic feature	**Finding**
Title given to this construction	The wood as 'demonstrator of change'
Features relevant to this construction of the wood	Time, the seasons, countryside, woodland, saplings, trees, dead trees, Mermaid's Pond, muddy water, rainfall, water, fruits, footpaths, old village lines, the estate, Milton Keynes
Discourses invoked	Urban development, encroachment, climate change, Seasons
Pat's interpretative context	Proximity, regular use and length of time lived next to the wood, marriage, being an active member of the community
Pat's subjective experience	A sense of fear (regarding the loss of trees, footpaths, or the eroding of village lines), protection (from the estate), first-hand experience of the environment as meaning provider
How this construction positions Pat	As a converted sceptic on climate change, as someone with an good awareness of the natural environment, as an active and caring member of the community, and as someone aware of historic village boundaries and modern change
Possibilities for action which this construction allows Pat	To educate other members of her community of her experience on the effects of environmental change. To take action to protect the village from encroachment

10.1.4 The wood as spiritual affinity

Pat described her spiritual experience of the wood in the first-person, using the singular pronouns 'I' or 'my', as opposed to 'us' or 'our'. Whilst some evidence of a collective element (discussed at the end of this section) the experience Pat describes is, by and large, personal rather than collective. When asked about her religious interest, Pat explained that she is a 'practicing Catholic' and that, as a result, "…*I certainly do feel a spiritual affinity er ih, is, is present when I am walking in the wood. And I do, er - I love that sensation of this beautiful, natural cathedral, which is what I, I mentioned to you before. It's a very good place to meditate. If you've got particular problems, it's a good, good way of sorting out what really needs to be done, what you think needs to be done, what you know you shouldn't do*". Interestingly, Pat says 2 things with the opening line of this statement; that she feels a 'spiritual affinity', and that she feels the spiritual affinity is *present*. Spiritual affinity is arguably a sense of connection felt internally, whereas feeling that a spiritual affinity is 'present' would seem to indicate a sense of something external. We may surmise from this that Pat depicts her sense of spiritual connection whilst walking in the wood as being both internal and external. The interviewee also asserts that she loves 'that sensation'. Use of the word 'that' indicates the interviewee feels it is not just her alone that feels this, but it is something that exists 'out there', which other people could also experience. The sensation described is that of a 'beautiful natural cathedral', which is a good place to meditate and reflect on the best actions to resolve problems. Later, when asked [Q. So is there a certain clarity of thought that you get when you're there?] Pat responds, "*A certain clarity. Let's, let's not put anything else on it. Clarity is er, is an acquired art*". Description of clarity as an 'acquired art' denotes an activity or skill which is obtained by experience or practice, thus is observed to be linked to 'meditation', and is presented as improving with repeated visits to the wood.

Pat refers to the wood as a cathedral twice; here as a 'beautiful natural cathedral', and again later in the interview when she advises that "…*one of the things that strikes you is that there's almost a confessional air about being in this great green cathedral, because perfect strangers tell me the most extraordinary details about their private lives*." That the wood should be perceived as a place of worship for this lady is unsurprising. The woodland canopy is markedly high, like a cathedral. Towards the end of the interview, "*I suh, well, I'm a practicing Catholic so that gives you an idea that um you know there is a suh, a strong element in, of religion, or rih, religious practice or instruction or history in, in what I've, what I've said to you. There er, yes it is there*". The reason for people 'confessing' to Pat is, she presents, connected to her being perceived as a 'non-threatening figure': "…*there you are with your 2 Labradors, strolling through the wood, wearing the same old blue jacket year after year. And they*

feel in, inclined then to confide. And it is this, it's almost a relief, you know, for some people". Pat presents herself as part of the makeup of the great green cathedral. Her uniform is a blue jacket, and her ceremonial activity is walking her dogs, which gives her a reassuring presence for people who need to 'confess' and feel relief. Thus the interviewee has an important role, especially in the context of the Catholic faith which places importance on the role of confession.

The act of confession in the wood is illuminated by a comment at the end of our interview, as when asked [Q is this different, is it quite different to what you do when you go to your church?] Pat replied, "*No, because um, the church is only a building. Um [pause] we are the church, you know, those of us that go. We, we, we know….we have that deep sense of togetherness outside as well. But in certain places it's emphasised by the fact that, here is somewhere where for centuries people have walked, people have possibly prayed or mediated. Um and you, you do get a sense that you're not always entirely alone. Well I do anyway*". This process, described by the interviewee as occurring in the wood is thus demonstrative of the Catholic church practicing in the real world. The wood is depicted as one of the 'certain places' that are more like a place of worship, where many people have meditated, or prayed, thus presenting it as a sacred place. The interviewee again mentions a 'deep sense', this time of 'togetherness'. This is related to *"… this extraordinary um, I don't know whether you'd call it camaraderie*…", an "… *element you see, that comes across, I think because we are where we are and because people feel relaxed enough to do that*". The 'extraordinary' camaraderie is thus presented as not ordinary, making this a *special* place, attributed to the "…*incredible atmosphere in this particular woodland*", and showing that the presents the wood as a place she values highly.

A story was told by this interview which further reflected the spiritual connotations of woods, as the interviewee explained, "…*we were doing our autumn, or, no post-Christmas, we call it the post-turkey trot after Christmas, we do one between Christmas and the new year, for people to walk off their lunches. And in Aspley Heath we found a little fir tree growing in the middle of the wood, and it had been completely decorated as a Christmas tree. And it struck me that it, it was a throwback to the ancient times when people used to decorate um trees in the woodland because they believed in the woodland gods. And you know, and I suddenly thought, yes, well we're not that advanced are we! It's a throwback. So it was, it was there and it looked lovely*."

Plate 10:1: A tree decorated for Christmas, Aspley Heath Sandpit

The decoration of the Christmas tree (illustrated by Plate 10:1) is associated both with Christianity, and with 'ancient times' possibly meaning Paganism. Additionally, the 'post-turkey trot' is presented like a ritual- annual custom with a purpose related to improving fitness. Rituals like this are said to be a 'throwback', and this is taken to mean a regression to former ways of living, thus tying in with the academic discourse of evolutionary theory. This is further developed later in the interview, when Pat says, "*…one should feel more relaxed in what are really our natural surroundings. Woodland- I mean this is how we started out, surviving in, centuries ago*." The decorated tree is also referred to as the 'little Fur tree', and notably this is the title of a traditional Hans Christian Anderson fairy tale about a tree that thinks and has feelings (anthropomorphism). Another reference to children's stories was made at another point in the interview, when the interviewee confided that, "*Er, and er the bizarre thoughts you have when you see a great, huge great tree and at the bottom there's a little, there's a little hole and you think, it should have a door on it. It did in Rupert Bear's time! In Nutwood, you know, it should have a little door. And I sometimes think that when I'm watching children's television with my smallest grandchildren. That I, I, I know big trees that should have little, little er door*". This presents the wood as incurring a sense of mystery, related to childhood tales where trees have a character, animals can talk, and small creatures (e.g. elves, fairies, pixies) inhabit the insides of tree trunks.. It is postulated that this is perhaps a deep rooted belief-turned-myth in English culture, which may represent a primitive understanding of ecology.

However, a further story was told which sheds light on the type of *unusual experience* that potentially fuel woodlands myths, as the interviewee explained, "…*the most bizarre thing I ever had happen to me in the wood was that, Billy came running towards me one day, the younger Lab this is of course, and he appeared to have a fox's face. And it wasn't until I got up close that I realised that's exactly what he'd got. He'd got a fox's skull with the fur still on it. Obviously desiccated, very dry. He picked it up somewhere. And he was carrying it in his mouth. So he'd got his top of his head here and a fox's face. And that really gave me a fright. I, well, I couldn't figure out what was wrong*." In a more superstitious era, this occurrence may have taken on another meaning, that animals (and occasionally humans) can metamorphosize and change form.

Throughout the course of the interview, Pat professed a sense of connection with nature. In relation to walking through 'very ancient woodland', she said *"… you have this very strong bonding with nature*", whilst collecting forest fruits was said to represent "…*being at one with your environment and appreciating it*". The workings of the woodland were seen as, "…*you know, this symbiotic relationship that nature's got within itself*", this term ('symbiotic') taken to infer a mutually advantageous relationship. This is interesting given that the interviewee presented her belief that human are part of nature [Q. do you see humans, people, as part of nature and ecology? Or do you see nature as something separate?] "*Oh no! I see, I see my fellow men and women as part of nature. Some more than others*." Thus humans are presented as being in a mutually advantageous relationship with nature, but can be more or less involved. Pat muses that some may be afraid, "…*because of what they read, and they hear of people being attacked. And you know, common sense should tell us all that we're only at threat from 2% of the population.*" This statement relates to two discourses in circulation, that of woodland being a place one may be attacked, and one which says the likelihood of being attacked is related to the proportion of the human population (here stated to be 2%) considered dangerous.

In relation to people who enjoy and feel *safe* in the wood, Pat goes on to say, "*Um, it's all about the individual, and, and they, these are people that you, you feel in tune with. If you spend time in the wood you feel in tune with those who also feel the same."* This suggests the interviewee is portraying woodland visits as something which changes individuals and makes them more likely to bond with each other. Thus a strong theme of this discourse is bonding; with other people, with nature, and with God. However, it is advised that not everyone feels this bonding since, "*You, you meet people who are distinctly uneasy in woodland… I've seen visitors, somebody's family come to stay. And you can see that the, the family, the visitors are ill at ease, they - this is not their natural habitat. And their, not their environment. And you, you think well if they were*

rabbits they'd have stopped by now and be washing themselves which is a panic reaction you know". The suggestion that different types of human have different types of *natural habitats* is interesting. The inference is that some are better suited to city life, an opposite position to the discourse of evolutionary needs which views all humans as being better suited to hunter-gatherer lifestyles. This depiction, and the comparison of humans to rabbits is representative of zoomorphism (the opposite of anthropomorphism) whereby humans are attributed the features of animals. This illustrates the point made earlier, that the interviewee sees people as part of nature, by breaking the divide between species. In addition, Pat advises that some people in the village "…*like to be surrounded by it, but they won't get involved in it*", acknowledging different levels of engagement with the wood.

The features of the discursive object (i.e. the wood) which are invoked by Pat in this construction (labelled 'spiritual affinity') are summarised in Table 10:3.

Table 10:3: Summarised construction of the wood as 'spiritual affinity'

Analytic feature	**Finding**
Title given to this construction	The wood as 'spiritual affinity'
Features relevant to this construction of the wood	Fellow men and women, the atmosphere, the woodland canopy, huge great trees, a little fir tree, decorated trees, woodland gods, her Labradors, rabbits, a fox's skull and mythical creatures, the Catholic Church, cathedrals
Discourses invoked	Catholicism, paganism, meditation, fairy tales, evolutionary theory, symbiosis, 'common sense' regarding being attacked in woodland, zoomorphism
Pat's interpretative context	Being a practicing Catholic, a grandmother to small children, a dog/ animal lover
Pat's subjective experience	Feelings of beauty and peace, safety, not being alone, being at one, clarity, camaraderie, togetherness
How this construction positions Pat	As a committed Christian, as an open minded person, a caring member of the local community, and as a familiar and reassuring figure to others
Possibilities for action which this construction allows Pat	To self-regulate, solve her problems, and offer relief to others

10.1.5 The wood as the weight of history

Pat advised at the end of our interview that, "*I feel the weight of history sometimes on me when I'm walking certain paths through the wood*". It was noted that this perspective permeated her reading of the wood, and her life generally. This is shown by her sharing of an important memory; [Q. Do you feel alone when you're in the wood?] "*Not lonely, but certainly um I do feel that er, you know, I cannot get away from this sense of history. I suppose it's because that has been my, my deep interest throughout life. And this comes from the fact that when I was about 8 my father, who was one of the first allied soldiers to enter the concentration camp at Berg, Bergen-Belsen, showed me his own private collection of photographs of the camp. And he said, 'a lot of people will think this is the wrong thing to suh, show a child. But you have to understand how evil these times are. How bad things were and you have to develop a sense of history'. And this is, it's always been with me*." This is thus presented as an important factor which has shaped Pat's life. The wood was described in relation to wartime activities, observed to be aided by Pat's position as voluntary archivist at Bletchley Park (the location of code-breaking activities in World War 2). Her extensive knowledge of houses in the village which were "… *what's the word…'requisitioned' by the government*", for "*black propaganda"* was occasionally shared through guided themed walks, organised by the P3 group.

The selection of the village for these activities was presented as being influenced by the wood, since, "…*the idea that this was in a woodland area and away from a, a big population where these people could operate. Er, that, that was part of it. You know? That, that, that it was just its location. But I think the only wartime er use for the wood were for exercises for home guard and military exercises. And also I understand for the odd ammunition dump, which we have been assured has been completely removed* [LAUGHS] *in the intervening 60 odd years*." This statement depicts the wood as *concealing* secret wartime operations, and as being synonymous with 'seclusion'; an area with a small human population. The woods are also presented as providing the space needed for troops' physical activity, showing a sense of functionality given this useful space was of benefit for the 'greater good'. Reference to the wood being a place deemed appropriate to 'dump' dangerous explosive devices shows that the wood has the ability to absorb toxic and dangerous substances but that this is not compatible with its use for recreation.

In relation to her visits to the wood, Pat explains that "…*when I walk through the wood I think about the women who centuries ago walked through these woods in very poor shoes, and had to walk through these woods to get to Woburn or to get to Aspley Guise … I am aware of all that, you know, that this - this didn't arrive yesterday, it's - it's*

something very solid that's been here for a very long time this. And it's got its own, you now its own rhythms and its own life and it's, it's lovely to be just a little tiny part of that and to appreciate it." This walking and imagining process is presented as a type of historical empathy; a retrospective identification process that enables Pat to reflect on her position in the wood in the here and now.

A particularly interesting example of a social event which combines a number of Pat's interests was given in the description of the 'beating of the bounds'. When asked about guided P3 walks, Pat explained that "…*we do the beating of the bounds every 3 years…it's centuries old, and many villages do it. And it had a very practical purpose. Because centuries ago, most people didn't read or write. So they wouldn't have understood a map. And they wouldn't have been able to have understood signposts… So what the village elders would do. Because they were the ones who would know where the actual village boundaries were. They would get the boys in the village, the lads, and they would take them round, on this walk. And at certain specific points of interest. They literally used to give them a clip round the ear or turn them upside down. So the boy would remember that point… And that's what beating the bounds is. Where we, as I said to you, we've stopped beating the children now, but the walk goes on*". This walk is presented as a historic way of marking territory, and as a current tradition which is perpetuated in order to retain a connection with the past. Whereas the historic purpose was an action linked to social circumstances (namely the prevalence of illiteracy), the current walk is for recreation, since the original purpose for the walk has been superseded by maps and textual representations of borders. The walk is presented as now including woman and as precluding the hitting of children which shows that times have changed, but public interest in territory remains. The features of the discursive object (i.e. the wood) which are invoked by Pat in this construction (labelled the 'weight of history') are summarised in Table 10:4.

Table 10:4: Summarised construction of the wood as the 'weight of history'

Analytic feature	Finding
Title given to this construction	The wood as the 'weight of history'
Features relevant to this construction of the wood	Village boundaries, people alive in the past, the woodland, ammunition, maps, photographs, Bletchley Park, historical requisitioned village houses, other local villages
Discourses invoked	Black propaganda, Nazism, code breaking, covert military operations, village traditions (i.e. the beating of the bounds)
Pat's interpretative context	Being shown photos of a concentration camp as a child by her father (a World War II soldier), her degree in history, her positions as a Bletchley Park archivist and on the P3 group
Pat's subjective experience	A sense of the weight of history, awareness of people's lives in the past, being part of the rhythms of life
How this construction positions Pat	Someone with extensive knowledge of the history of the village, woods, and the local area
Possibilities for action which this construction allows Pat	To educate the local community (e.g. through voluntary P3 work), to derive deeper sensations from woodland walks

10.2 Bob

10.2.1 Background

Bob is 85 years old, and has lived in the village of Aspley Guise his whole life. His father was born in the village, mother was from neighbouring village, and their parents were also from the local area. Bob has recently lost his wife after 54 years of marriage. Their children used to play in the wood, and Bob reminisces, "…*I remember way back I - when, when er well, when I got married, I lived at the cuh, house on the corner of Duke Street. Right opposite the wood. So um, and with my 2 kids I'd quite often er go into this area or go and look for my son. He'd play in this area*." When Bob was born, his father was the clerk of the parish council, and he has since been involved with this organisation 'all his life'. He has just completed 50 years as a parish councillor, and sat on the District Council for 16 years. He has also been "…*connected with the church all my life, not quite verger but what they call sacristan*", and was church warden for over 20 years. In his earlier years, Bob was an apprentice for a Bedford based company, and worked there as an electrical engineer for 44 years. Following the company being *"...taken over by an American firm, that only understood*

the bottom line", Bob entered a business arrangement with his son to provide gardening services to the local community.

Bob remembers the wood from when he was a little boy, and is able to recall many changes that have occurred there due to the changing land use. He is the holder of two historic maps which show the wood, a map showing the public rights of way through the wood dated 1902, and an enclosure award map dated 1745. The enclosure award map shows areas of the village including, "…*Mount Pleasant, Bedford Road, the Square, West Hill where we are here right? So [PAUSE] - yeah, this is the Square, this is Bedford Road, coming in here. This is West Hill, this is Woburn line. This is Gypsy Lane, which is along here. [PAUSE] And this is, the church is still there… and that clay pit that I was talking about there, you see this is how far it goes back*."

Consideration of the material provided by the interview with this interviewee showed that the 'discursive object' (i.e. the wood) was mentioned directly and indirectly in four ways; i) as a childhood memory; ii) as observed change; iii) as a negotiated place; and iv) as tradition. However, there was no clean divide between these categories, which manifested as a series of overlapping themes, related to the personal interests and circumstances presented by this interviewee.

10.2.2 The wood as childhood memory

This interviewee was born in 1926. All his references to the wood are in the past tense, as he explained, "…*I don't walk that much myself in the wood."* [Q. Why is that?] "*Well age. You know, I don't have the cause to.*" This statement reveals that the interviewee considers the wood to be inaccessible to someone his age, and that he feels he no longer has a *reason* to go to the wood. Many of Bob's memories of the wood relate to when he was a child. He presented memories of various aspects of the wood, such as a mature cedar tree and the fuller's earth quarry;"…*I remember the tree you see and I remember saying that the parish, because it was right on the edge of the area they were going to excavate*". He notes that his Dad used to lead walks in the wood since,"…*the parish council was more involved with footpaths than they are now, because P3 seem to look after them. But Dad as clerk of the parish council, and in the summer would probably lead a, doing the, well not every year but they'd do some footpath walks sort of thing, as an organised thing*." This shows that Bob's remembers the parish council having responsibility for organising walks for local people, and that his Dad was the leader of these walks in the wood. Additionally Bob shows he recognises a shifting of responsibility from the council to the P3 group who now 'seem to look after them'. There is no further mention of walks organised by the modern-day parish council.

When asked, [Q. can you remember what the walk was for? For enjoyment or to check them (the paths)] Bob advised these were, "*Well for enjoyment you know, something to do, I mean because footpaths were ur, were used more than they are now. I mean the P3 walk and make sure they're still there*". This shows the interviewee considers times to have changed, and that the organised walks led by his father were for recreation. Being used 'more than they are now', shows he considers that walking for enjoyment is no longer such a popular recreational pastime. The work of the P3 group is to 'make sure they're still there', thus this has a functional purpose, rather than being for enjoyment. This interviewee also constructs walking in the wood as something that was more important in his childhood, as explains, "*Way back there wuh, er there wasn't as much to occupy your time, you know there are no idiot box sort of thing. And you tended to go… on a Sunday… well I was the only child, my mum and dad and meself on Sunday afternoon you'd go for a walk and walk in the wood*." [Q was it more of a usual thing for people to go out (to the wood)?] "*…yeah, you would see more people walking in the wood for relaxation sort of thing"*. Walking is here presented as an recreational activity popular in an era when there was less choice in activities. People have more now to 'occupy their time' due to the 'idiot box' (meaning television). We can infer from this that the interviewee considers television watching to be dull, and not educational. This statement also presents walking in the wood as something the interviewee did with his *family*, as a group activity. It was a Sunday afternoon pastime, and given that in the time of Bob's youth (early to mid-1900s) Sunday was traditionally a day of rest, walking in the wood is thus interpreted as a leisurely, tranquil activity. This is further upheld by the detail given of it being 'for relaxation', indicating a purposeful activity to achieve a specific effect.

When asked [Q. was it (walking in the wood) a common thing for people to do?] Bob responded, "*Well people you, you had people walking about more than they do now. I mean - it was sort of relaxation. Something to do. Right now you see they sit at home and watch the idiot box, or go out in the car, or you know. And well, you knew everybody who had cars in the village, there weren't all that many sort of thing*". Here then we are presented with a comparison to the modern day, whereby television watching and car use are common place. At the time of Bob's childhood, cars were rare, and so people walked about more, not just from transport however, but for 'relaxation'. We might infer from this that the interviewee considers modern lifestyles, with more cars and televisions, to offer less relaxation. Bob remembered the keeper lived in the wood, saying "*…even when I was at school there was, well there was one keeper lived in Henry the 7th's Lodge*". This shows that the memory of the keeper relates to Bob's childhood, and was a figure of authority (discussed further below). The interviewee also presents going to the wood as something as a child,

unaccompanied by any adults. He advised that, whilst at school "…*in the summer you'd go for a wander about in the wood in the dinner hour sort of*." When asked [You were allowed? So the teachers…] he replied, "*Oh yeah, no, because I mean once you were there, they was only worried about you in lesson times sort of thing… we walked quite a lot about here*." Use of the word 'wander' indicates the walking at lunchtime was a casual stroll, without direction or specific purpose. This also indicates that leaving the school at lunchtime was within the rules, as the care responsibility of teachers was limited to lesson times. This reveals an increased sense of personal responsibility for his own wellbeing, and freedom from the classroom in his dinner hour. Bob's statements do not provide any sense that he felt in danger whilst unsupervised in the wood.

The features of the discursive object (i.e. the wood) which are invoked by Bob in this construction (labelled a 'childhood memory') are summarised in Table 10:5.

Table 10:5: Summarised construction of the wood as a 'childhood memory'

Analytic feature	**Finding**
Title given to this construction	The wood as a 'childhood memory'
Features relevant to this construction of the wood	The wood, a cedar tree, the fuller's earth quarry, the footpaths, his mother and father, the parish council, the keeper of the wood, his school
Discourses invoked	Aging, mobility and access, political structure (e.g. local authority responsibility for recreation), historic forms of recreation and relaxation, social change (i.e. cars and television use), responsibility for children whilst in school
Bob's interpretative context	Being born and growing up in the local village, his age (85 years old), his father being a member of the parish council
Bob's subjective experience	Memories to ponder in place of actual visits to the wood
How this construction positions Bob	Someone who used to use the wood but who no longer visits them due to age and lack of cause
Possibilities for action which this construction allows Bob	To remind people of how life used to be in the local village before the rise in use of cars and 'idiot boxes'

10.2.3 The wood as a changed place

This interviewee has many experiences to draw on which allow him to reflect on how the wood has changed over time. Initially when asked, [Q. Do you know much about

the sandpit?) he replied, "*Well oh, oh, oh, I mean now I er-er-er the Aspley Heath side I, I don't know a lot about*…". This comment is probably related to Bob's position as Parish Councillor and lifelong resident of Aspley Guise, and shows he feels his knowledge is specific to this locality. However, Bob then went on to say, "…*the sandpit itself has - that has changed out of all recognition. Because it's um, it used to be quite steep. I mean people used to… get the coloured sands, they put them in layers in a…in a jar sort of you know, you've seen them. The, er but there was various layers where there, er that you could collect distinct colours up there. Well of course now, it's er [PAUSE] I suppose when it ceased being a, I mean a sandpit that digging in or, or you get the vertical or near vertical face. And over the years that's got eroded and pushed down… So you can't really see it as a sandpit like I remember it. But it's a long time since I went up there*".

Twice here the interviewee makes remarks that indicate the sandpit has undergone massive change, so much so that has 'changed out of all recognition', and can no longer be recognised 'as a sandpit like I remember it'. Bob presents the remembered sandpit as 'steep', with a vertical exposed rock face which showed the layers of sand. He presents his memories as relating to a 'working pit', and 'when it (the digging) ceased', the working face was lost, and the steep sides were 'eroded and pushed down' making it unrecognisable. Bob advises that people used to collect sand from the pit, and place them in a jar, so as to display the layering due to the 'distinct' 'coloured' layers of sand exposed at the working rock face. As such we are presented two functions of the sandpit- as a working functional entity, and as a recreational facility. However, both functions are described as being lost along with the working face Bob remembers. He finishes with a disassociation similar to that which he opened with, that it has been 'a long time' since he went to the sandpit, thus keeping open the possibility that this mutable entity has changed again since his last visit.

The interviewee was asked, [Q. Can you remember Mermaid's Pond?], the response being "*Yeah. It's not in the position where it was. It's moved over a bit.*" When prompted for further information, [Q. The whole pond?] he expanded to reveal, "*Yeah, when they - it was outside the area they were digging, but the…the contours are nothing like they used to be. Because they dug …they dug this area first. And the overburden… they, um deposited on the end, across where Mermaid's Pool is. And of course it slides down into the pool so part of the pool is where it was. But the furthest er bit away the pond has spread. Because er, er, er it engulfed the various trees and log and the silver birch and that. And they didn't last long you see. And for a long time you'd got these stumps that, that gradually rotted away. But that's, I remember Mermaid's Pool, yeah.*" This presents a scenario whereby the actions of humans (the fuller's earth quarry) have caused this pond to move location, and we are given an

explanation of how the pond came to move. We are told that 'they' (the quarry workers) deposited the 'overburden' (material lying above the mineral) close to the edge of the pool. We are advised that 'of course' the overburden slid into the pool, indicating the interviewee feels the workers should have known this would happen. Since water collects in the lowest ground, this extra sediment made the contours 'nothing like they used to be', and caused the water to spread away in other direction, causing the pool to move. The interview presents the pool as then 'engulfing' the trees, presenting an image of existing tree cover being surrounded by water which slowly consumed the trees, causing them to 'gradually rot away'. Bob finishes this description by musing that 'I remember Mermaid's Pool, yeah' hinting his memory is of the pool prior to this change. Interestingly the interviewee refers to this feature as a 'pool', rather than the term 'pond' which it is now known by. He was not able to offer any theories on the origins of the name 'Mermaid's'.

In relation to the loss of ancient woodland to the quarry, Bob explained that, "… *the ancient woodland probably went round about maybe World War 1, when the - I mean the er, and so I don't think there was er a lot of - I mean there's, there's parts of the wood that I've seen felled, replanted and felled again. In my lifetime you see*". This shows that the interviewee did not consider the deciduous woodland of Aspley Woods (converted to quarry in the second half of the 20th century) to be ancient woodland, since this had already been felled in the early part of the century. He has lived long enough to see the full forestry cycle, and is accustomed to trees being felled. When questioned further on the loss of ancient woodland to the quarry [Q. So you don't get too precious over it then?], Bob replied, "*No. I didn't, I mean it didn't, yeah, er, because of what I considered this was for commercial woodland anyway. I mean when they started getting uptight about digging it, this side up, there was a lot of people you know in Woburn Sands, they was going to, oh it was going to alter the…the view, and that*." Here it is implied that commercial woodland is acceptable to cut down and that this type of woodland is not considered ancient. The interviewee presents other people (not himself) as being worried about the changed view however, and as getting 'uptight' about this change, as they preferred the view to remain unaltered.

Later in the interview it was advised that "…*people were sad to see the wood go. But it, you know, and then when they, when they started to reinstate, they did replant. But it wasn't successful. Because what they didn't understand was the ground was over-compacted because the big earth moving equipment, these big scrapers and that which came and dumped it. So they, they had to have a second, sort of loosen the top and, and now it is more successful sort of thing*." This statement thus relates to the restoration work carried out following the closing of the fuller's earth quarry. Although people were 'sad' to 'see' the wood go (the visual effect), it is presented that

this sadness would be negated by reinstating the trees ('but they did replant'). It is then advised that the reinstatement needed to be of a specific quality, which initially was not met, since 'it wasn't successful'. The cause of this failure is explained; '*they*' (the restoring quarry company) 'didn't understand' the ecological impacts of machinery. That the interviewee is able to explain the process and effects of compaction shows him to have more knowledge than the contractors. The reinstatement of the wood is finally identified as being 'successful sort of thing', an inconclusive closure which leaves open the possibility of further changed opinions.

The features of the discursive object (i.e. the wood) which are invoked by Bob in this construction (labelled 'a changed place') are summarised in Table 10:6.

Table 10:6: Summarised construction of the wood as 'a changed place'

Analytic feature	**Finding**
Title given to this construction	The wood as 'a changed place'
Features relevant to this construction of the wood	The sandpit (coloured sands, the vertical face), Mermaid's Pool (water level, contours), the quarry, overburden, compacted earth, reinstatement, trees, tree stumps, felled trees, commercial woodland, replanted woods
Discourses invoked	Historic recreation activities, historic and current land-use practices (quarrying for sand and fuller's earth, forestry), environmental impacts of quarrying
Bob's interpretative context	Lifetime residence (and past family) in the local village, position as Parish Councillor, extensive local knowledge
Bob's subjective experience	Calmness when confronted with change, understanding of local issues, awareness of the boundaries of his knowledge
How this construction positions Bob	Someone who can remember how things used to be, who has first-hand experience of the effects of land use on the wood over the years, who knows change is inevitable
Possibilities for action which this construction allows Bob	To offer advice based on experience and reassurance to other members of the community

10.2.4 The wood as negotiated place

The wood was frequently presented as a place subject to negotiation between local people and the land owning estate. This is in contrast to Aspley Guise, as when asked [Q. Is the village very involved with the estate?] Bob replied, "*No. I, the, the - the estate owns the land. But very few properties in the village. Not like Husborne*

Crawley, Ridgmont, where there were, where, which are estate villages so to speak." This shows that the interviewee's perception of ownership within the village is related to the *buildings* (not surrounding land). That his community is not considered to be an 'estate village' sets it apart from the other nearby villages. It was advised that, "*…there had been no, as far as I know, there were no problems er as far as that er you know being able to use the wood. The er, well only in as much that the whole of the middle area of the wood has been dug up for fuller's earth*." This statement shows that local people had access to the wood apart from when the quarry was active.

However, numerous memories were described which related to debates over the footpaths through the wood. These debates were initiated, "*…at some time, I think it must have been pre-World War 1, I'm not quite sure one, when, but the reason why there was private paths in that side of the wood was that the, the then Duke, because it's all part of the Woburn Estate, er the, the then Duke wanted to close the wood. Make it private. For some reason [PAUSE], I don't know. But he [PAUSE] tried to close the wood*." The time referred to would have been before Bob's birth, therefore it is assumed this account is a story passed down, quite possible from his father. The proposition is that the landowner of the time wished to close the wood, which would have resulted in the privatisation of footpaths in 'that side' of the wood (presumably the Parish of Aspley Heath). Closing the footpaths is here synonymous with closing the wood itself.. This was 'for some reason', indicating the landowner had a purpose, but this purpose was not known to the interviewee; however, the pauses in this statement may indicate the interviewee had some thoughts about the purpose of the intended closure that he did not share. Bob went on to explain, "… *then I think there was probably a high court action or something in the end that came down that certain paths were to remain public… so the Duke in a way lost part of the action because certain paths remained open*." Again this situation is presented as something the interviewee is not certain about, as it 'probably' occurred 'in the end', showing there were probably more deliberations before the eventual outcome. This is in comparison to the assured accounts of events associated with Bob's own village, which he presents with confidence.

The upshot of the court action was that some footpaths remained public, thus public rights were protected by the legal system, and the duke 'lost'. However, this only related to 'certain' paths, the implication being that others were closed to the public, the duke had actually only lost 'part of the action'. It is believed the court action referred to by this interviewee is that related to Aspley Heath, begun in 1902 and ordered in 1906 (see Section 8.1). Later in the interview, the relevance of the judgement made in respect of Aspley Heath was made clear, as it was advised that, "*…the thing was that the, because the duke lost out on [PAUSE] closing er, er, er that,*

well, if he'd have been successful that side, he would have done the same here. But he didn't". Effectively the interviewee is saying that the outcome of the court action which related to the *neighbouring* parish also had an effect in *his* parish. Had the paths been closed in Aspley Heath, he believes the paths would subsequently have been closed in Aspley Guise, showing the two parishes as intrinsically linked due to the shared ownership of the land.

The map Bob is the keeper of is the same age as the OS map which presented in the aforementioned high court action. He explains, "*…this is the 1902 map. And there were, these marked… the main footpaths, although there was other… tracks through, well-worn tracks through the wood in, as it was laid out sort of thing. Which on this side of the wood also were, when I was young were all considered public rights of way. Well according to dad…*" This original map is over a hundred years, and is thus likely to be relatively rare. It is presented as having the 'main' paths through the wood 'marked'; thus these paths were not part of the original map, but were added by another person. Other 'well-worn' (i.e. much-use) tracks had not been marked on the map, but when Bob was young, these were considered public. This contrasts with the situation now, whereby these paths are no longer considered public. That they were public 'according to Dad' relates to the interviewee's father as an authority figure, both to this small boy, and also to the community through the father's position within the local church and parish council. A comment is also made here relating to the wood 'as it was laid out'. This shows that the interviewee recognises the wood to be intentionally 'laid out' plantation, and that paths sprang up around this arrangement of trees. The view on the development of paths was affirmed by a further statement made later in the interview, relating to the quarry. It was remarked that, *"…it was a, an unofficial path, which had, I think appeared when they stuh, started the fenced off the area for the fuller's earth. So people walked up to that fence and then round the edge of the fence sort of thing.*" The formal public (official) rights of way contrast here with the formation of this 'unofficial path', made by the footfall of people walking round an obstruction.

These comments and others shown the interviewee respects the authority of the definitive map for designating official public footpaths through the wood, but that, prior to the development of the map, the parish council retained power over what paths were considered to be rights of way. Through explanations such as, "*…those 2 footpaths there (points at map) were on the definitive footpath map. But nothing in the wood itself. Because they was all considered public paths*", Bob reveals that the *absence* of paths on the definitive map was taken to mean they were 'all public', rather than that there were no official public paths, thus showing his trust in the authority of the parish council. More than this however, it related to people born in the village, as

revealed by an anecdote concerning the name of a track (illustrated by Plate 10:2); *"...I mean that path was left up to the edge of the workings and I think it's still there. I mean that er, well (the chairman of the parish council) used to say, refer to, as the Old Cart Way. But I don't know where he got that from. I mean he moved into the village as a stranger and he seemed to think he knew what we were about. Because this track here, was the original road and that before that one, long, long time ago, probably before it was tarmacked, because dad always used to refer to that as… what we call the Sand Hills. And that path which is the guh, dad always referred to as the Old Coach Road. (the chairman) disputed that*." Thus the views of this chairman, someone who 'moved into the village as a stranger', who 'seemed to think he knew what we were about' were disputed. This indicates a type of hierarchy in place concerning the negotiation of places such as the wood.

Plate 10:2: 'Ye Old Coach Road', 1811 (Postcard from the collection of Paul Cox)

Important to the concept of the wood being a negotiated pace is the image of 'the keeper', the man who "…*kept his eye on the wood*". This singular keeper was later referred to in plural terms, as it was advised that, "…*the keepers, they were, they was, would be about. And er on, this side, if you were caught on a path you shouldn't be, as in a private drive, private path, they would turn you off. And people were er er, well they respected this you know. I mean it wasn't - there wasn't this - well there was plenty of paths to walk without walking there*." The keepers being 'about' shows they were not in a fixed location, but were 'somewhere', immersed in the woodland setting. They are presented as authority figures, who watched what was happening in the

wood and 'kept' these in a state which served the landowner's interests. Children who strayed into an area they 'shouldn't be' would be 'turned off', which is assumed to mean told to leave the area. These private paths were out of bounds, i.e. for the use of the estate, and thus represented forbidden areas within the wood. 'People' walking in the wood are presented here as respectful, keeping within the rules since there was 'plenty to walk' elsewhere. Hence their compliance is linked to the abundance of walking routes offered by the wood.

The negotiated character of the wood was perpetrated through court action, the work of the keepers, and the work of the parish council. Within the wood however, some paths considered 'public' did not ever receive designated status, despite social action. A story was relayed, that, *"… (the chairman), the bloody fool, said that everybody had got to say theirs in identical words,- well you can't, everybody can't suh, they, if they say it their own words, they don't say in identical words. And he wanted evidence sort of.*" [Q. What evidence? What was he after then?] "*Well people to make statements that for a number of years they had used that path you see. But they all got to say identical things. Er the bloody fool and er that's wuh, fuh, it fell you know it went on and on. And it fell by the wayside."* The interviewee shows his disapproval of this situation by twice using the term 'bloody fool'. It is implied that the chairman had a fundamental misunderstanding of people, as did not recognise that people do not say things in identical ways. Thus Bob is presented as having this understanding. This also indicates that the chairman had put pressure on people to provide a certain type of evidence for court.

Later however, he presents a story by which he was an active disseminator of helpful information about the footpaths: "…*a similar map to this that I er, microfilmed at work. And printed it off the off the litho that I had there. I printed about 150 of that bit you see. For people to mark up what they thought, from their statements and evidence*." This was thus an opportunity for people to give their own accounts of footpath usage. Ultimately the unrealistic expectations of the chairman led to the action going 'on and on', until it eventually 'fell by the wayside', indicating that circumstances moved on and the issue of the paths was left behind. The interviewee describes the eventual outcome of this situation, that some of the paths in long term use, considered by locals to be public, were not added to the definitive map. This implies a kind of 'moral of the story' ending, showing that the attempts of this single person to manipulate the accounts of parishioners in the past has had a long-term outcome which affects many.

The features of the discursive object (i.e. the wood) which are invoked by Bob in this construction (labelled 'negotiated place') are summarised in Table 10:7.

Table 10:7: Summarised construction of the wood as 'a negotiated place'

Analytic feature	**Finding**
Title of construction	The wood as 'a negotiated place'
Features relevant to this construction of the wood	The village, the wood, quarry, private paths, public paths, well-worn tracks, unofficial paths, the Old Coach Road, the Old Cart Way, the Duke, the keeper, maps (e.g. definitive footpath map), statements of evidence, the Parish, Woburn Estate, Parish Council, High Court, the P.C. Chairman
Discourses invoked	Public Rights of Way, property rights, right to public access
Bob's interpretative context	His position on the local Parish Council, his family connections to the Parish Council (esp. paternal relationship)
Bob's subjective experience	Wariness towards those considered 'strangers', sense of self-worth, feeling of a life well-lived
How this construction positions Bob	A mediator, with in depth knowledge of the local area, who cares for the wellbeing of local parishioners, who stands up for the rights of others
Possibilities for action which this construction allows Bob	To provide advice, and (before his retirement) be involved in institutional processes which affected the parish

10.2.5 The wood as tradition

This interviewee has an extensive personal connection with the village and woods. In addition to generations of his family being born locally, Bob followed in the footsteps of his father, and held a role in the local church as a sacristan. This would bring him into contact with many members of the community in a way which earned respect. Bob advised that, *"… my father was clerk of the parish council when I was born. And so I feel I've been involved with the parish council all my life. Because I couldn't help it with dad, and he was, there was an overlap of him being clerk, still clerk at the parish council when I decided I would become a councillor myself. So I've just completed 50 years as a Parish Councillor… (and) 16 years on the District Council*." The most telling comment here is that Bob considers he has been 'involved' with the parish council his 'whole life', from the day of his birth. Thus he presents this role, serving the community, as an integral part of his identity, and something which is intrinsically linked to his father, Notably the interviewee does not mention his mother during the interviewee, indicating that the interviewee's father was the main representative figure for him in connection with the wood and the community.

Further evidence is provided of Bob's immersion in village life. It is explained that, after being made redundant from his job of 44 years, he became a local gardener. This began as a family business, since Bob's son had, *"… decided to set up on his own as gardener, and he, he'd got too much work for 1 and not enough for 2. And just as I was made redundant he decided to go back and work fuh, for somebody else, rather than himself. And he sort of left me his old ladies… some of them I was spending as long having a cup of tea and chatting to them as I was um in the garden. But I thought I was doing just as much, probably doing a better job*." This work is thus presented as having a social element which made it 'better' than simply gardening, since the interviewee provided company for elderly (potentially isolated) ladies. The 'chatting' and 'cup of tea' also indicate a source of discussion about village life, and represent informal flows of local information.

These positions of importance are presented as evidence that, "…*well I mean on the, in the village I was puh, church warden for over 20 years. And I've been puh, parish councillor, I've been chairman on 3 occasions. So you know, if anybody wants to know anything about Aspley New Guise, they come to me*." The interviewee's presentation of himself in this way is reminiscent of a tribal elder; someone who has lived in the village longer than most, who has extensive knowledge, and is thus someone that others go to for advice about the village. He has held positions of authority both formally, in respect of religion and politics (which he was born into), and social support through his gardening business. He is a holder of documents such as the maps described earlier, and is the repository of local knowledge passed down from father to son, as shown by comments such as, "…*now according to what dad told me, that the [PAUSE] - on this side of the wood we considered them all public paths*." [Q the whole lot?] "*The whole lot*."

Knowledge such as this was important when, *"… then the Duke or the Bedford Estates decided that they wanted to close the whole of this wood… there was a review of the definitive footpath map. Because it's a long time, I mean this is about 35 years ago now, that the Bedford Estates er, er, er applied to have those 2 footpaths extinguished*." Bob and his father are presented as important stakeholders in the events that followed the estate trying to 'close the whole of this wood', and 'extinguishing the footpaths'. The length of time since this happened (35 years) presented as being a 'long time ago', but represents a potential loss of access which would have had ramifications for current day arrangements. Bob explains that, in relation to the extinguishing of 2 paths into the wood, "…*there was a public enquiry about it… and my father was clerk of the parish ... and the vice chairman… and myself, went down to um county hall… (and) the inspector opened this bit of the enquiry, he asked the Duke's agent why he wanted to close these. Because actually the fields*

belonged to them as well. And he says, 'well because they didn't go anywhere'. And I says, 'why?' 'Well because there's no public paths in the wood'. And I just said, 'well we've always used these'. And he says, and so the inspector says, 'well ih, in that case if er, er we'll make the - we'll put these on the definitive map'."

The 'agent' here was requesting, on behalf of the owner of the wood and neighbouring fields, that paths from the fields into the wood be closed because they 'don't go anywhere'. The closure of the paths is presented as a matter of popular concern, one which instigated a democratic process because (for Bob) the paths *did* go somewhere. He and his father (in their role as members of the parish council) attended this 'public enquiry', along with the vice-chair of the council in order to prevent the closure. Bob's presence at the enquiry enabled him to inform the process, telling the inspector the paths connected with paths in the wood which 'we've always used'. Use of the word 'always' here indicates a sense of permanence and longevity which gives weight to the position. The information offered by the interviewee is presented as the basis of a recommendation ('so the inspector says') to put additional paths on the definitive map. Thus Bob's knowledge and status nearly led to additional paths in Aspley Woods being given protected public status. Had the parish council not have become involved the implication is that the paths would have been extinguished, eroding access of the wood.

However, the paths in question were not added to the definitive map, since, "…*the duke's agent…. he advised that said, if you make that a public you know, if you go to make those public paths, I'll make sure that they are the only paths that the public can use.*" The interviewee advises that it was he who responded to this, since, "…*well it was me who was doing most of the talking on behalf of the parish council. I says, I wasn't worried about making this a public footpath, as long as the wood was left open. I wouldn't go as far as, I would be quite happy that those foot, footpaths were left there. Which seemed a reasonable concession you see. Well then of course (another member of the parish council) says you shouldn't have agreed to that, you know? You should have enforced it. Well, I mean it would have caused all sorts of problems that - if they said they was the only paths that you could use*." [Q what kinds of problems?] "*Well, they, they would- because people wouldn't have been able to walk as they had been used to*"

The interviewee is here presenting himself as a representative of the people. The recounting of this memory shows that his main pejorative was to protect access for local people to be able to walk 'as they'd been used to', and not simply to 'win' against the estate. Thus the concern being conveyed is the maintenance of the traditional right for parishioners to walk in the wood. Bob was happy to remain with the paths

being informally public, (a 'concession' made in in order to be 'reasonable') as long as the wood were 'left open' for the people. This perspective is repeated in a later part of the interview, whereby in relation to the registration of common rights for a village sandpit, when asked, [Q. Why do you think it's important to have those kind of things registered] Bob replied, "*Well, I don't know. Just tradition sort of thing. I mean the rights*". However, Bob conceded that he was advised by another member of the council that he should not have 'agreed to it' . His decision not to 'enforce it' was to avoid 'all sorts of problems' which would be created if the agent did go ahead with his threat to 'make sure they're the only paths that the public can use'. Nevertheless, by not 'enforcing it', the right to public use is currently unsecured, and knowledge of the historic use is dependent upon people (such as Bob) living in the local area, who remember and who would fight future causes.

During the course of the interview, Bob referred to various informal arrangements, (rather than formal written agreements) in the organisation of local natural resources. In relation to "… *sandpits, you see on this (points on map) there's a sandpit there and there's the old clay pit there. Now there's, we reckon it be rights*." [Q. rights?] "*Of the villagers, you know, would dig sand in that pit. Or they could dig clay in the old clay pit*." The position that 'we reckon it to be rights' indicates that Bob and other selected villagers have knowledge of the common rights to use these resources, knowledge which (as with Aspley Heath Sandpit) is not necessarily registered.

This informal approach also applied to the protection of a cedar tree in the old fuller's earth quarry, regarding which Bob said, "…*there was a big cedar tree. A really big tree… I remember the tree you see…it was right on the edge of the area they were going to excavate*". The protection of this tree had come to the attention of the parish council as it was considered important to the local community. Bob recalled that, "…*they reckoned it was going to take 25 years to work through you see. And they did give an undertaking that they would protect that tree. And being the youngest one on the parish council, the chairman turned to me and he says, you better remember that, because you'll probably be the only one er still on the council in 25 years, you see. And so I remember that. And that tree*." [Q. was it in writing?] "*No, well I duh, I don't know whether they was, it was written. But er, well - and they did agree to look after it.*" The agreement to protect this sacred tree was thus stored in the memory of a parish councillor, rather than committed to documentary form, and relied upon the interviewee's continued membership of the council over a 25 year period.

Unfortunately the tree did not survive the quarrying activities, because *"… they upset the drainage and the tree [PAUSE] - well er he did get permission to cut it down because it - er well it was getting to a poor state. It would have, you know, it wouldn't*

have survived… I was quite sad to see it go." It is interesting here how Bob describes these events in terms of people rather than actions, e.g. 'they' did agree to look after it (rather than there was an agreement), 'they' upset the drainage (rather than the drainage was upset), 'he' cut it down (the tree was cut down). It is surmised that this interviewee's perspective on the wood is built around social relations.

The protection of the right to organise local natural resources is further illustrated by reference to a story concerning the registration of the village green, whereby it was confided that, "*…it went to the high court and the action was in the, going right back before the days of the parish cuh, before parish councils. The people who administered the village before then was the church wardens and overseers. Right? So this action was in the name of the rector (…) and (…) the church warden*." [Q You remember their names?] "*I do, because one of them's mine you see*.". Here the interviewee advises that, before the days of the council, the church administered access to the village resources, and that one of these was his ancestor. He later advises of a road in the village, 'Browns Way', which was "*…named after dad anyway*". The presentation of this information shows that for this interviewee, the perception of objects in the local environment (such as the wood) are intrinsically related to the discursive resources held by village elders such as his family.

The features of the discursive object (i.e. the wood) which are invoked by Bob in this construction (labelled 'tradition') are summarised in Table 10:8.

Table 10:8: Summarised construction of the wood as 'tradition'

Analytic feature	Finding
Title given to this construction	The wood as a 'tradition'
Features relevant to this construction of the wood	His father, footpaths, the definitive footpath map, the Duke, the wood, a cedar tree, the sandpit, the parish council, district council, community, old ladies in the village, church
Discourses invoked	Historic property rights systems (i.e.. commons, informal verbal records keeping, naming of places, land registration), PROW legislation and the rights of the public to use land, social responsibility, Christianity
Bob's interpretative context	Following his father (a church verger and parish councillor) Bob's position as sacristan in the church, as parish councillor and district councillor
Bob's subjective experience	Sense of dignity, self-respect, self-worth
How this construction positions Bob	As a respected 'tribal elder', someone with exclusive knowledge, who villagers go to for information on the village
Possibilities for action construction allows	A be consulted as source of expert advice, and an authority on local matters for parish decision making

10.3 Andrew

10.3.1 Background

Andrew lives just outside the Georgian village of Woburn with his wife and 2 children, approximately 4km from the study site. The house he lives in, Woburn Abbey, has been the family's ancestral home since 1627. The Abbey is a stately home, situated in a 3000 acre deer park, and parts of it are open to the public. Andrew was born in America during his father's final year at university, and moved to England when he was 12. He returned to America to study at the same university as his father, graduating with a BA degree in English.

Andrew holds a number of titles, including the 15th Duke of Bedford. This title has been passed down the generations of his family since 1694. He is the general manager of Bedford Estates, and thus has overall responsibility for the board which manages the property holdings of the Russell family. Aspley Woods and Heaths is part of the Bedford Estate, and areas of the site have been part of the family's forestry operations for over 200 years. The wood and heaths are integrally linked to Woburn

Golf Course, since provide a backdrop and noise barrier for this renowned course. The study-site is also situated close to other estate enterprises, including Woburn Safari Park, the Inn at Woburn, and Woburn Abbey Deer Park. Andrew is interested in "… *country pursuits, anything from walking, to shooting… horses, nature, you know*". He has a particular passion for horses and horse racing, but has not been able to ride since being involved in a car crash. He enjoys walking in "… *different places. Around the park, you know, I'll just go and park by a footpath and go for a walk. You know, you get to see different places on the estate*".

Consideration of the material provided by the interview with this interviewee showed that the 'discursive object' (i.e. the wood) was constructed directly and indirectly in three ways; i) as a commercial wood; ii) as a place for people to enjoy; and iii) as responsibility. One phrase which the interviewee used throughout the interview has not been included in the analysis, the expression '*you know*'. This phrase is considered to be a 'discourse particle' (Siegal, 2002), i.e. a term which has no direct *semantic meaning*, but which instead has a pragmatic function, to structure and assist the relationship between speaker and listener.

10.3.2 The wood as commercial woodland

Aspley Woods and Heaths is a mixed broadleaf and coniferous plantation site, commercially managed as part of the Woburn Estate woodlands. From this perspective, trees are seen as timber, and as Andrew advises, "…*timber is a crop, it's now an energy crop too. It's not just a, you know, furniture house-building crop.*" Trees are here described in terms of their productive function, as 'timber', which indicates their material use to humans when felled. Timber is further described in agricultural terms, as a 'crop', i.e. something intentionally cultivated in order to be harvested. Two types of use are articulated, a *traditional* use (a 'furniture/ house-building crop'), and a *modern* use (as an 'energy crop') through use as a biofuel. This perspective presents trees as being perpetually important to both historic and modern societies, and as an aspect of nature mastered through intentional cultivation.

This perspective is reiterated later in the interview, whereby Andrew explains, "*I'm trying to think, you know, what, as it were 'in nature', is, in this country, is not a sort of crop. And I guess you know you, say things like hedges and things aren't, and the trees in the park certainly aren't. Um, but in Aspley it's a you know, it's a commercial wood, though it has a multitude of uses.*" This sentence reflects an observation that much of Britain is cultivated. Hedges and trees 'in the park' are intentionally planted but are not conceived of as crops, since are not planted for the purpose of being harvested. The comment 'it has a multitude of uses' reflects a recognition that trees provide

multiple benefits. Use of the word 'although' shows that other benefits are situated in relation to the *primary* use (i.e. forestry), suggesting an anthropocentric position whereby other uses are a by-product of the commercially managed forest.

Andrew explains how trees (as crops) are thinned and felled, saying "…*you've probably, depending on what type of tree, you thin you know 2 or 3 times in the cycle of what your final crop is*." This indicates that felling varies according to which species of tree has been planted. Use of the word 'cycle' suggests this is a procedure which is periodically repeated. It is later explained that, "…*a big problem with Woburn is, because of the price of timber over the years, a lot of our woods are on a, not on a good silviculture rotation. So we've got a lot of catching up to do with felling…They didn't cut when the price was bad. Well you don't get the choice of doing that when you're growing a crop in the fields. So you really shouldn't do that when you're growing woods…. it's going to take 2 generations to try and smooth that out. I mean that will take you know 60 plus years*." This statement indicates that the wood is seen in terms of a cycle which is influenced by market forces, and which is part of an estate ('Woburn'). We are told that undesirable market prices influenced the harvesting of estate trees, and that the decision not to fell was likened to a decision not to harvest field crops. This shows the interviewee perceives there are parallels between agricultural cycles and commercial forestry. The wood is described in terms of 'mature trees' which are seen as 'a problem', and which have an effect on other parts of the 'silviculture rotation'. This rotation cycle reflects the idea that ideally, different parts of the wood should be at different stages of growth simultaneously. From this position, many of the mature trees at the site should have already been felled, and the estate have 'a lot of catching up to do with felling' to return the cycle to its correct equilibrium. A long-term approach is required to 'smooth this out', given the slow growing nature of the tree stock.

Forestry practices are often described using specialist terms, and Andrew highlighted an interpretative element to silviculture, in the context of forestry classifications. He advised that, "…*one of the weird things about woods, when you talk about you know, 'ancient semi-natural'. Well, ancient to me you know is, well I guess the Egyptians are ancient! [LAUGHS] Um, but woods, you know, trees die. So I don't really understand all the sort of er technical expressions of forestry, I have to say.*" Comments such as 'when you talk about', and the 'technical expressions of forestry' support the position that terms are discursive resources which are contextual. The example of 'ancient semi-natural woodland' (ASNW) is given to illustrate this point. The discourse of ancient Egypt is provided to contrast with the finite life of trees which 'die', but which may still be termed 'ancient'. In response to a suggestion posed, [Q. apparently it's to do with continuous cover; if an area has been under continuous woodland cover for

400 years, it's classed as ancient], the interviewee replied, "…*Good. Well prove it! Prove it, is all I'd say*". The interviewee is thus presenting knowledge of Egyptian society as well-established, and knowledge of historic British land use and land cover as difficult to prove. As such, the wood is indirectly positioned as a place which has little formal proven knowledge accorded to its historic development, making designations such as ASNW questionable.

In relation to semi-naturalness, Andrew goes on to say that in the estate, "…*there are a lot of trees that are not native trees. So what's a natural? You can ask these questions and you'll never get an answer*". Here then, 'naturalness' is linked to whether species are *native,* and is perceived to be a contested concept which is undefinable. When a further question was posed on this topic, [Q. Is it natural, if it's a tree that's been planted by a person?] the interviewee responded, "*Yeah. As opposed to a squirrel! [LAUGHS]… it's everyone's different take is what it is. But it's not a consistent take… it's their individual interpretation really isn't it?"* Thus, whilst natural definitions can be thought of in terms of human or non-human propagation, definitions are a matter of 'individual interpretation' so ultimately not definitive.

Presentation of the discursive object (the wood) as a productive forest resource includes the concept of felling. The interviewee reminisces how a previous head forester approached local people living adjacent to a clear-fell site to discuss the felling. This step was presented as being to minimise concern to residents since, "…*it's going to affect them. They're going to see the work going on.*" [Q And trees are quite deep] *"Trees are emotive. Trees are very emotive. I mean we've got, we found, I can't remember the name of it, because I'm not very good on trees. But um, just on one sort of avenue, the other day, 3 trees with some dreadful fungus. That means you've got to take down trees within 50 metres of it. So we're going to lose 40 plus big trees down an avenue, but* (trails off)". Initially the premise that 'trees are emotive' is offered in relation to residents living near clear-fell sites. Through this statement, the interviewee shows that he recognises this requires careful management, as people have an emotional sensitivity to the felling of trees. Thus Andrew is presented as being sensitive to others sensitivities , and the wood (as productive forest) is presented as something which must be managed in relation to other users. . However, the repeating of this phrase, 'trees are very emotive' is followed by an anecdote which appears to signify the response of the interviewee himself. This story, which relates to a recent discovery of 'some dreadful fungus' will mean the loss of '40 plus big trees'. The interviewee does not detail his own feelings about this, but given the placement of the statement, it is taken to symbolise the interviewee himself feeling emotive. When asked a question about what users like about the wood [Q. Is it something very specific about the woodland environment that they like?] Andrew replied "*Yeah, it's also*

because Woburn Sands road is a noisy road. But you get away from that. Some of the sponsored professional golfers who come here, and I guess they play at courses round a lot of airports, around the world. And they say that well the amazing thing about Woburn is how quiet it is. Which a lot of people (like); you know in everyday life, it's not that quiet." Here then the capacity of the wood to buffer sound is situated in relation to another estate enterprise (the golf course). It is described in relation to professional golfers who visit many courses 'around the world'. Woburn is 'amazing' because of the quiet, in contrast to 'everyday life' which is 'not that quiet'. Thus the wood is presented as a special place, related directly to the capacity of trees to buffer sound.

A further user group was mentioned within the interview, this being people who cycle in the wood. Particular note was made regarding the impact of cycling, since "…*they are, you know, exposing tree roots and all that sort of stuff. And when those trees are mature, then you've got health and safety aspects, they'll come down…It's going to become like a sort of sandy lunar landscape for bicycles in time, isn't it…If you expose the roots, they'll die. And if you look at the trees there, compared to where the bicycles don't go, it's simple and obvious*." Here the interviewee explains a view of the wood as being a forest resource, but one effected by the impacts of a particular recreational use, biking, which erodes the soil and eventually exposes tree roots. Mature trees with exposed roots are less safe, as are more likely to 'come-down'. This situation is presented as being objectively verifiable, given the potential for observing the evidence by 'looking at trees' and 'comparing' to areas not used for biking. The interviewee gives a prediction 'In time' if this continues, it will become like a 'sandy lunar landscape for bicycles', a metaphorical reference to the moon which inspires an image of the future bike area with little vegetation.

Silviculture practices at the wood are subsequently presented as needing to accommodate the effects of cycling, since at the bike track the trees, "…*will be* (harvested) *earlier because of the danger caused by root exposure and root damage*". This statement indicates there is a 'right time' to fell trees, but that there are opportunities to speed up the felling process. Thus whilst the ideal 'growing cycle' is relatively fixed, the felling process is adaptable. This view, that forestry occurs in cycles, is supported by further observation; "…*in the cycle of the wood you know it comes, you have a crop, then you fell the crop and you get you know the understory comes back, and then the trees take over again. It's called nature! And it's on a cycle, so there are times when you know you get different types of conservation, different types of animals that use the same piece of land*." Here, the cycle of the wood is presented as beginning with a crop. When this crop is felled, another habitat grows (the understory) until the 'trees take over'. From this position, trees are seen as

dominant, and represent the beginning and end points of the cycle. The cycle is 'called nature', thus from this position, the planting of crops is also part of nature. This view is confirmed later in interview, as when asked, [Q. Do you see us as part of nature?] the interviewee responded "*Mmm… probably better you know in the rainforest than next to Milton Keynes. Um, but yeah of course we're part of nature.*" This is presumed to be a reference to indigenous rainforest tribes being integrated into their surroundings, and living as 'part of nature', whilst inferring that urban living and local settlements, whilst less integrated, are still conceived of as 'nature'.

The notion that nature goes in cycles, and forestry fits with these cycles, is presented by the comment, "*…sometimes when we clear fell, we replant, and sometimes you try and get natural regen to do it. Because you know that's, you know you've got to have a combination of both*." In saying 'we clear fell, we replant', the interviewee identifies himself as part of forestry operations, whilst to 'try to get natural regen' to replant shows an identification with those ecological processes which work 'in combination' with estate silviculture practices. The remark that you've 'got to have' the combination of anthropogenic and ecological propagation shows that natural regeneration (Plate 10:3) is of importance to the wood as productive forest resource.

Plate 10:3: Naturally regenerating pine, Old Wavendon Heath

The interviewee advised that the source of his knowledge for other habitats at the study site to be ecological reports, saying, "*…you've got you know lots of patches of heather and wildlife…if you're going to do something, you do all the ecology reports…I*

do read the reports. [LAUGHS] I might not understand fully what they mean, but I read them yeah." This comment was broadly taken to mean that the interviewee reads reports and is thus *aware* of habitats which coexist with woodland, but does not have specialist knowledge which allows him to gain a full understanding from the technical terms expressed in ecological documents. Reference was made to the location of the designated SSSI, this being, "…*I think, the most important habitat there*", and when asked, Andrew also commented on the Scheduled Ancient Monument (hill fort), with the insight, "*There are bits on the golf courses which are you know, very ridged, that don't seem like a natural ridge.*" This interesting point was probed further, [Q. Oh, so you think there might be more there?] to which the interviewee replied, "*Well I think there could well be yeah. I mean you know you just leave them, they're a feature of you know the golf course".* This statement presents the incorporation of the ridges into the golf course as a form of conservation, since 'you just leave them', thus they are protected although not designated. Notably the comment 'bits… that don't seem like a natural ridge' presents human activities (fort building) as *not* natural.

Regarding the SAM designated hillfort which lies under the wood, questions were asked about the potential for forestry practices to disrupt the monument, [Q At the time when it comes to clearing that area, would you do it in a sensitive way?]. The interviewee replied, "*Yeah. Well you have to do it in a sensitive way. I mean I don't want to destroy, you know something that's there. Because you know, it's there, it is part of our history*." [Q. Some people seem to think that it would just be clear felled and it would be lost] "*Well, you're not going to lose it*." [Q. What about the machines going over it?] "*Well again there might be things you do, you know, I mean a different type of harvesting. I mean there are some things you know, that if you're going to destroy things, they won't let you do it anyway*." Here it is presented that any forestry practices around the Scheduled Ancient Monument would be sensitive to the monument to prevent its loss. Adaptations might include 'a different type of harvesting'. This is imperative, something you 'have to' do, for 2 reasons. Firstly the interviewee states 'I don't want to destroy it', given that it is 'part of our history'. By speaking in the first person ('I don't want to destroy') the interviewee displays a sense of personal responsibility towards the forestry work even though he would not undertake the work himself. Reference to the monument as part of 'our' history shows this is viewed as being collective heritage, and is being protected for the good of others- shown also by the assurance 'you're not going to lose it'. The second reason for its protection is stated as being 'they won't let you' destroy things. The persons referred to as 'they' are not named, but this is presumed to mean the authorities vested with protecting SAMs, i.e. English Heritage. This shows that the interviewee

recognises a legal responsibility towards protection of the monument which is enforceable.

The features of the discursive object (i.e. the wood) which are invoked by Andrew in this construction (labelled 'commercial woodland') are summarised in Table 10:9.

Table 10:9: Summarised construction of the wood as a 'commercial woodland'

Analytic feature	**Finding**
Title given to this construction	The wood as a 'commercial woodland'
Features of the wood relevant to Andrew's construction	Timber, trees, felled woods, growing woods, ancient woods, the forester, native trees, squirrels, avenues, fungus, the noisy road, quiet, tree roots, bicycles, understory, animals, , natural regeneration, heather, wildlife, Wavendon Heath Ponds, Danesborough Hillfort [furniture, houses, biofuels, crops, hedges, Egyptians, the golf course, rainforests, Milton Keynes]
Discourses invoked	Silviculture practices, nature cycles, sustainable energy, economic markets, social designation systems, ecological nomenclature, anthropocentricism, interpretivism
Andrew's interpretative context	His position as general manager of the Bedford Estates (land management and businesses), family history of forestry
Andrew's subjective experience	A robust attitude towards tree felling (but emotiveness regarding trees lost to disease), a long-term view, perception of trees as a source of income, a questioning attitude towards land designation systems
How this construction positions Andrew	Someone with a broad knowledge of silviculture practice, timber markets, and the impacts of forestry (on habitats and local people); someone who is interested in heritage and its protection through integration with other land uses
Possibilities for action which this construction allows Andrew	To run economically viable woodlands; to attempt to balance estate forestry practices with other environmental and social responsibilities; to retain an informed critical awareness of the limitations of designation systems

10.3.3 The wood as a place for people to enjoy

The wood was presented by this interviewee as a communal resource used by members of the public for various activities, and was situated in the context of the access agreement. When asked if public use of Aspley Woods and Heaths was seen as part of Woburn Estate, the interviewee replied, "*Yeah. Well it is, because I think you*

know, it is an access area, it's there for people to use and enjoy. I mean Woburn has got over 80 miles of footpaths on it… it's a great area that people can enjoy." Here it emerges that Andrew regards public access as part of estate activities, and regards this to give people access to a 'great area'. This free, open access land is subsequently situated in relation to other parts of the estate which are profit making enterprises. This is tantamount to an implicit form of social responsibility (not dissimilar to corporate social responsibility), since 'it's there for people to enjoy'.

The interviewee was asked the following question regarding public use of Aspley Woods and Heaths, [Q. Do you feel happy that people can go there?] and replied, "*Yeah*." When probed further, [Q. Do you feel generous?] Andrew responded by saying, "*No. I think it's right. [LONG PAUSE] It's, you know it's a positive. I think a lot of people are unaware that you know, Woburn is part of the access agreement. Um, but I'm not, I don't want to go trumpeting it because you know, people go there, enjoy it*." It is interesting that the interviewee stated that it is 'right' that the public should be able to access the study site, as opposed to this circumstance being a measure of generosity. This comment presents public access to the wood as being unqualified, and as having intrinsic value, rather than a right bestowed upon others by the landowner. This statement also has the effect of decentralising the perception of power from the interviewee's individual jurisdiction to a more ethical and depersonalised sense of 'rightness'. The long pause after this comment added further weight to this statement since suggested there was nothing more to say on the matter. This statement also presents the interviewee as someone who derives enjoyment from doing the 'right' thing (from people using the wood), and who is modest (through not feeling generous about this). It is stated that people are 'unaware' that 'Woburn is part of the access agreement'. Woburn here is taken to mean the Bedford Estate as grantor in the access agreement, and thus presents the estate as an undisclosed benefactor, whilst the comment 'I don't want to go trumpeting it' reveals a self-effacing attitude. That the estate has 'over 80 miles of footpaths on it' shows the extensive nature of free-to-access resources. Hence we are shown that whilst the estate receives benefits from forestry practices, its position as a provider of services to the public is not exploited to derive any further benefits in terms of public image.

In relation to the activities people engage in at Aspley Woods and Heaths, the interviewee muses that, "*…there are 3 different you know, very different user groups. And I would think you'd get, you would have had some interesting interviews… because they're totally different aren't they? Or 2 different groups have you got? The quiet enjoyers and active enjoyers I would say. Because walking is active, but it's… it's just getting out in nature. Well, some are out in nature and some of them are active participants.*" Here the user groups are described as 'different', 'very different', and

'totally different'. This indicates the perspective that people engaged in different activities have things in common with other members of their activity group, but that these groups have little in common with each other, being 'totally different'. This diversity between members is observed to have the potential of providing 'interesting interviews', and reveals that different recreational activities (in the same site) are observed to give different experiences (quiet, active) which will prompt different perspectives. Use of the term 'user group' appears to borrow from a socio-political vocabulary, and is taken to portray a functional perspective which groups people according to the utility derived from a particular resource (in this case, the wood). This activity group perspective is then set aside however, in favour of stimulation categories, i.e. 'quiet enjoyers' and 'active enjoyers'. It is presented that walking could be 'active', or could be 'just getting out in nature' (a 'quiet' activity'). This statement indicates that nature (represented by the wood) is something outdoors that you 'get into'. Some users are quiet or *passive* when in nature, whilst some are 'active participants', implying they are engaged in a process of interaction *with* nature.

Perspectives were also shared on the interactions of groups involved in management of the site as a communal resource. When asked, [Q. How do you feel communicating and collaborating with those groups? Are they very divorced from what you do here?] the interviewee replied, "*No, we have a, um annual meeting with the access area crew, which is, probably fills up you know half this room. You know, it can take 16 or 18 people. So you've got you know, within that you've got the councils, who are running out of money, um you've got the Greensand Ridge with their thing, you know, approach to it. You've got us with our approach to it, you've got the rangers who've got to do it on the ground. Um, and everyone's coming from a you know, not the whole way round the circle, it's not 360 degrees, but you know you certainly have 180 degrees of looking at the issues*." The term 'access area crew' presents this as a team who are working together on the same issues, whilst suggesting that the crew 'probably fills half this room' indicates that a lot of people needed to manage public access. The access agreement crew is divided into 4 groups: the Greensand Trust (GST), councils, Bedford Estate and the rangers. Interestingly however, the GST is misnamed, as is referred to as the Greensand Ridge (i.e. the name of the landform and geographical area covered by the Greensand Trust), which could signify the interviewee has little dealings with this organisation other than through the access agreement. The councils are presented in terms of financial pressure, the GST and estate in terms of 'approach' (guiding principles), and the rangers (presented as a separate group rather than part of the GST) in terms of practical implementation. These are taken to imply 'drivers' which instigate a particular orientation which guides how group members 'look at the issues'. The interviewee uses the metaphor 'degrees

within a circle' to symbolise how these groups have distinct viewpoints upon the management of the access agreement. Saying these are not 'the whole way round the circle', but are '180 degrees of looking at the issues' suggests that the viewpoints are not completely opposing, but are nonetheless understood to be contrasting and diverse.

When asked if the access agreement crew meetings were focused on public access, the interviewee responded "*Well it's not just public access, because you know the Greensand Ridge er have their you know, desires. Um, we have our desires and the council have their desires and then the rangers have got to somehow try and make it work. [LAUGHS] So you have got actually lots of different people who tell you, you know, will give you a big spectrum of reality and views*." It is likely that the 'desires' of the GST mentioned here relate to the conservation objectives of this organisation. This statement is then broadened to depict all management groups involved in the access agreement as having specific objectives, and to infer that the 'desires' (objectives) of these groups influence their contribution to the management plan. The inputs to the plan subsequently reflect a 'big spectrum' of 'views and reality', which is understood to mean a wide range of *subjective* ('views') and *objective* ('reality') opinions presented by individuals from the different groups. However, the rangers, who 'somehow try and make it work', are presented as neutral individuals who enact the desires of the other groups, rather than as employees of one particular group (the GST) which have specific objectives related to their approach. This could suggest that in this case, the approach (theory) of the host organisation is perceived to be moderated through the everyday experience (application) of the rangers in the wood.

Further comments constructed the wood (and other estate land) as a communal resource in relation to a rave collective called "…*Leviticus*". This collective has been given permission to have outdoor parties on Bedford Estate land, "*In certain places, if they are licensed*." As such, parties have criteria to adhere to, including being held at a specific location, and the gaining of an entertainments licence from the local council. These permitted raves are set in the context of other, illegal raves; however, when asked about these, [Q. Weren't they doing it before (without permission?)] the interviewee responded, "*Well who knows who it was… it's easy to pass the buck, 'oh it wasn't us, it wasn't our sound system', so you've got no idea who it really is*." It was then advised that, [Q. I found pictures on the internet from I think the 90s when they were doing it in Aspley Woods]. In reply to this, Andrew answered, "*Well they did one, probably 4, I would guess 4 years ago in the old Steetley buildings, the other side of the road. Um, and someone died at that one, the next day. And so we took the roofs off the buildings, so they didn't use them in winter. Well it's a way of getting round it. But you know, it's just, that's the downside of raves because you know the*

drug culture that seems to go with them." The illegal raves carried out at Aspley Woods and Heaths in the 1990s were acknowledged to be connected to the current rave collective, however the event which occurred at the old quarry building (detailed in Section 8.2.4) was attributed to a different collective. The interviewee makes it clear he was aware of the death of a young rave attendee the day after this party, and that he took action (removing the roof from the building) to prevent other unauthorised parties and associated problems at this venue. The effects of the 'downside' of raves (drug culture) are hence presented in the context of 'taking action' to prevent unsanctioned parties; and through the provision of alternative facilities for licensed (legitimised) parties at sanctioned venues.

The decision to let the Leviticus collective use land was suggested to position the interviewee as an ally to the rave collective [Q. You must be quite an important ally to them in a way, because you have resources that will allow them to (have raves)?]. In relation to this, Andrew said "*Yeah, I'm happy to talk to other people if land is the resource they need*". A short conversation then occurred which probed this further: [Q Are you charging them?] "*No*" [Q. Why not?] "*Why charge?"* [Q Because they're using your property] "*But they're using it on an occasional basis and (we just) set aside a field, no problem… the requirement is, is that they're licensed*". The interviewee's willingness to talk to people who need land is viewed in light of his position as head of Bedford Estates, a large landowning estate, and his role as overseeing the management of estate resources. Whilst the use of many estate resources is potentially chargeable, land has been offered to Leviticus without charge given the 'occasional basis' that this is required, and minimal effort required from the estate. In this respect, and given the cooperation of the landowner, this land is subsequently constructed as a transitory communal resource. Stating that it is 'no problem' to 'set aside a field' is seen in the context of the large quantity of fields and other land resources held by the estate.

In adding that the 'requirement is they're licensed', the interviewee reemphasises that these parties will be legal and sanctioned, the implication of which is that, in doing so, certain criteria will have been met to control the more dissident aspects of raves. Andrew has been assisting with the licensing process, advising that, *"… I had a meeting with Glen with the council the other day. Yeah."* When asked about this, [Q. Oh, okay. So how'd that go?] he replied, "*Oh great. I find them much easier to get on with than the council. Oh yeah. [LAUGHS] By a hundredfold. Because you know their movement, they want to do something, they're you know, 21st Century Britain. And provided you know, they provide loos, they clean up the mess, and they don't have drugs, what's the harm in it? Quite simply*." It was later added that the "*…biggest hazard in the woods is the risk of fire",* thus fires are prohibited.

This statement shows that the interviewee has a rapport with the main organiser for Leviticus (Glen) and is assisting the organisation it its endeavours to obtain licenses. The interviewee is able to 'get on' with 'them' (assumed to be the leaders of the organisation) particularly in comparison to the council, for the reason that 'their movement, they want to do something'. This indicates that the interviewee's willingness to assist the rave collective is due to respect for them 'doing something', and for embodying a 'movement' which is making a principled effort towards achieving a common goal. In stating that 'they're 21st Century Britain', Andrew presents Britain in terms of culture (rather than landmass), and shows his regard for the movement as representative of contemporary British culture. This is in comparison to the council, an organisation which is by contrast, implicitly positioned as antiquated. The statement also presents some of the conditions attached to the temporary use of this land resource, these being related to hygiene, i.e. sanitation and the cleaning up of mess; and legal compliance, i.e. being licensed and not having illegal drugs. The view is given that if these conditions are complied with, then 'what's the harm'. Following on this, if there is 'no harm', there is 'quite simply' no reason not to allow the raves to go ahead, indicating this is a straightforward situation and an easy decision to make.

Further mention was made of some alternative, counter-culture aspects of the Leviticus movement. These included the 'price police', a system which regulates pricing of goods sold at raves, and which opposes profit maximisation, and the communal living arrangements of some members of the collective. When asked for his views on this, Andrew said, "*I think if that's how people want to live in a commune, why not?...It's one version of the big society isn't it? Under Prime Minister Cameron. I think it is. Well it's my, one of my definitions of it anyway.*" Communal living is not the societal norm, however, the interviewee shows his ambivalence towards this breaking of tradition with the statement 'why not'. This indicates his position that people should have freedom to choose how they wish to live. References which follow (to a 'national board', the 'big society', and 'Prime Minister Cameron') further legitimise the decision to live in a commune. However, the interpretation of communal living being 'one version of the big society' shows recognition that there may be other definitions, and thus others may interpret the decision to live in a commune in different ways.

It was then asked whether it was thought that the commune members are [Q. …doing it out of choice? Or is it they're doing it out of necessity?] In response to this, Andrew said, *"I think you've got, you know combinations of that. Different people have different views as to how they want to do it… for some people it's you know it's the housing and what's affordable. And for some people it's you know how they want to lead their life…life is about choices. Um, and you know I think, provided it, you know*

it's not harmful to others… it's people's choice. There's no point in being judgemental about it." This statement indicates the interviewee's position that emphasises the recognition of individual differences, the importance of choice, and tolerance towards others. As such, it is notable that some aspects of the resource sharing activities of the Leviticus commune correspond with the estate's sharing of land resources for raves. Andrew's provision of the land as a communal resource thus enables people to have increased choice. Through doing this, he is able to take action in accordance with his principles, in a similar way to the actions taken by the Leviticus movement in accordance with their values. Given the respect afforded to the collective for living by and taking principled action, it is surmised that making land publicly available in accordance with his own principles is a source of positive inspiration for the interviewee.

The features of the discursive object (i.e. the wood) which are invoked by Andrew in this construction (labelled 'place for people to enjoy') are summarised in Table 10:10.

Table 10:10: Summarised construction of the wood as 'a place for people to enjoy'

Analytic feature	**Finding**
Title given to this construction	The wood as 'a place for people to enjoy'
Features relevant to this construction of the wood	Woburn as an access area, footpaths, different user groups, nature, the Greensand Ridge (or Greensand Trust), councils, rangers, sound systems, Steetley quarry buildings, land, fields, 21st century Britain, noise pollution, fire, people who live locally, housing
Discourses invoked	Public access to land, negotiable aspects of access agreement, subjective and objective perspectives, drug culture, modern British culture, the big society, individualism
Andrew's interpretative context	His position as general manager of Woburn Estates, as a well-known figure in the local community, his participation in the access agreement, and relationship with the head of the rave collective
Andrew's experience	Positive inspiration and a sense of 'rightness'
How this construction positions Andrew	Socially responsible, tolerant, modernist
Possibilities for action which this construction allows Andrew	To collaborate which other social groups (on behalf of the estate), and take actions which balance the objectives of the estate with the needs of local communities

10.3.4 The wood as responsibility

This interviewee described the discursive object (the wood) in a way which imparts a sense of responsibility towards people, the estate, and the wider environment. Concern was shown for people walking in Aspley woods and Heaths, through the statement, "… *you get families looking after you know grandparents, grandchildren...and children go running off, it's - I hope it's safe - I haven't heard that it's not safe. Um, which is also increasingly important."* In referring to dependents, people that 'families look after', the interviewee reveals a concern for the more vulnerable woodland users, as 'hopes it's safe'. Whilst to his knowledge the wood is safe, this is presented to be an issue which is growing in importance. Andrew also displays responsibility through the need to ensure that the wood is safe for health and safety reasons, explaining, "*Well you've got to do a huge inspect, from the health and safety point of view, of roadside trees, footpath trees. And it's a legal requirement, quite right too."* As such, the interviewee displays a dual concern towards users, directly in concerns over their safety, and indirectly through health and safety legislation which must 'quite rightly' be adhered to. This responsibility is perpetuated in practices such as the 'huge inspect' of trees, and 'hearing' about events which occur in the wood which indicate its safeness.

In addition to users of the wood, a sense of responsibility was displayed towards estate employees; "…*we get sort of multi-generational families… you know, X is Y's son and Z's the grandchild and they work here…that certainly brings responsibility, because you do, you know, especially I guess in hard times realise that you are, your businesses employ a lot of people. Um, and that's people's you know life, livelihood"*. This statement is an indirect means of constructing the discursive object, due to Andrew's role as general manager of Bedford Estate, of which the wood is a part. These employees are therefore indirectly linked to the management of the study site (as part of the estate structure as a whole), this bringing 'responsibility', as the estate employs many local people. This perspective is observed to be embedded in, and relevant to the construction of this discursive object as part of an estate.

Elements of the wood which typified a sense of responsibility for the estate were further presented in the context of the interviewee's family circumstances. Andrew explained how his father, "…*was only 32 when my grandfather left. Because he rang up one day and said he'd run out of ideas and he was going in 6 months. So there wasn't er, exactly a lot of time to prepare. And then I guess you know, my Pa had his stroke when I, in '88, so I was 26, um and got you know, got much more involved…(but) I was involved in attending meetings before then.*" The estate is effectively a family business, and the interviewee is charged with maintaining the family assets for future

generations, as his ancestors did. This indicates a form of responsibility, and negates a short-term approach to management. The events described indicate that the interviewee may have felt a heightened sense of duty due to the need to act in difficult personal circumstances, and would have required a strong character to undertake leadership of the estate at a relatively young age.

Regarding the involvement of the interviewee in estate meetings in his twenties, it was commented that, [Q. That's quite young isn't it?]. in reply, Andrew explained, "*It is, but if you, you know if it's going to be your responsibility one day, I think you've got to sit in on the meetings, so you understand, you know, what people's approach is. And that way you sort of, you get drip fed um, you learn about what goes on in the meetings, which you don't really know about till you go to them and you get sort of drip fed the approach and attitude. And you know, in terms of what I guess I want, or to try and make Woburn is, not to use dreadful words of today, but to keep traditional values, but you know, be modern really. We're in 2011, and so you've got to adapt things like that."* In saying that 'you know it's going to be your responsibility one day', the interviewee presents the perspective that he was aware he would one day take charge of estate affairs, and that this manifested as a 'responsibility'. Although this perspective is a personal one, interestingly this is not described in the first person. Rather than say 'I knew' Andrew says, '*you* know', '*you've* got to sit on meetings so *you* understand', and '*you* get drip fed'. This appears to make the experience something which anyone could have, instead of being a very specific role accorded to him, increasing the likelihood of others relating to this experience.

The interviewee discloses that he attended meeting before he taking over full responsibility for estate affairs as a way of learning gradually ('drip fed'). This attendance is presented as being people-focused, since the meetings allow Andrew to 'understand people's approach', whilst indicating that the first-hand experience gained from learning for himself is of value. In addition to understanding other people's approach, attending meetings also enabled Andrew to be 'drip fed the approach and attitude' of the meetings themselves. Since Andrew would have been attending meetings with his Father, it is possible that this comment relates to learning a way to conduct these meetings, in a type of 'apprenticeship' role. These two ways of learning are reflected by the later statement which portrays a desire to 'uphold traditional values' (represented by learning from his Father), whilst adapting to 2011 and being 'modern' (represented by learning through his own observations). The maintenance of traditional values is further reflected through a wish to avoid 'dreadful words of today', while modernism (or perhaps post-modernism) is suggested by 'what I want or *to try* to make Woburn is…', a statement which allows the negotiation of alternative outcomes.

After the retirement of his Father, Andrew took on the role of Head of the Board of Trustees who manage the estate. This was noted to be an important decision making role, and one which necessitates frequent interactions with people, a circumstance which is likely to have a bearing on the interviewee's decision making. When asked, [Q. Are you more people focused?] the interviewee advised that, "*Well I guess I probably deal with more people, so you realise that you know how many heads go into making a decision, um and you've got to try and take the majority with you, if you want it to work.*" Stating that he 'deals with' more people indicates the interviewee's role includes multiple interactions with people, whilst 'realising how many heads go into making a decision' would appear to reflect democratic decision making processes which are part of his role. This statement also presents the need to achieve a consensus, to 'try and take the majority with you if you want it to work', as an important component of successful leadership.

In order to achieve consensus and keep the estate on track, the interviewee's sphere of responsibility also appears to extend to communities around estate. A story was recounted which featured the Forestry Manager discussing imminent felling with locals. It was advised that, "*…he explained to them you know, this is coming down, it's in our forestry plan. But instead of looking at you know, yeah it's going to look unattractive, it's going to be noisy for X weeks; in you know one season of growth it's going to be green, and actually think of all the light it takes from your house…*". Here, felling is depicted as non-negotiable, since 'it's in our forestry plan', and thus locals are made aware that 'this' (the wood) is 'coming down'. The story is presented as containing a moral in two ways; as the correct way to act (by informing people), and as the correct way to inform (by focusing on positive rather than negative points).

The interviewee gave a further perspective on estate communications with local people regarding clear felling, saying that, "*…it's going to affect them. They're going to see the work going on. And you've just got to, you know I guess, make them think of it as a forester sees it. Because they actually think of it more, because they know, you know, we all know driving around that a clear fell is greened up in a year. But we don't actually think of it maybe when it's right next to our house*." By stating that 'it's going to affect them', the interviewee displays empathy and an awareness of the impact of forestry upon people living close to the wood. It is implied that a way of lessening the affect is to make locals 'think of it as a forester sees it', which is that 'clear fell is greened up in a year'. This suggested transferal of perspective is interesting, as it is placed in contrast to the image of clear felling 'right next to your house', a personalised and thus non-professional outlook which (as discussed earlier) is potentially more emotive. The Forester's perspective is presented as something we

can all perceive from 'driving around', rather than as obscure specialist knowledge, whilst the estate's responsibility is to communicate this to those most affected.

Other effects on local people are displayed through references to public consultation exercises; for forestry (for felling licences), for raves (to obtain public entertainments licences), and in relation to changes to the golf course (for planning permission). Attendance of the user group forum was also drawn upon in this construction of Aspley Woods and Heath. When asked how forum decisions are made, it was advised that, "*…there's sort of, you know whatever the closest compromise, I would think is what comes out of it. Because if you've got that many people trying to come up with a decision, um, it's inevitably a compromise*." A multiplicity of individual perspectives is again implied here through the comment '*that* many people', and the resignation that decisions to achieve a mutually acceptable arrangement are 'inevitably a compromise'. The notion of decision making shared between many might indicate a corresponding distribution of responsibility, but no further evidence was identified to support this position.

A sense of responsibility towards wildlife emerged throughout the interview, related particularly to non-native rather than native forest and grassland species. The view of animals was observed to be intrinsically linked to the interviewee's connections to Woburn Safari Park, and the Woburn Abbey Deer Park. As an illustration of this point, the interviewee had been asked whether he [Q… gets to stroke (tiger and lion) cubs]. Initially, Andrew responded that he did not, "*…because you leave them with (the mother), well, only if the mother rejects them*". He was however able to recount one story which showed his close contact with a wild animal, described thus: "*…when my little brother was growing up, there was actually, there was a, a tiger cub that had been rejected. And so she grew up in the house. It was great. Until she was about 6 months old, when the claws started coming out. But no, there are pictures of him you know in his um pram, and we called her Tigger, with Tigger sort of up looking into the pram! [CHUCKLES] So it was great you know, those are yeah, the real you know bonuses*." The circumstance of having a tiger cub living in the house for 6 months is an uncommon situation, and is demonstrative of the types of experiences the interviewee may have to draw on with which to construct his notions of wildlife. In commenting that 'those are the real bonuses', Andrew shows his appreciation for the privileges afforded by being involved with the safari park.

Further reference was made to endangered species; "*…we've got a, hopefully we've got a pregnant elephant. So you know, conservation is important and we look after the, you know grassland. And er maybe the Greensand Ridge with their take on conservation and ours, is different, is how I would um, put it.*" Suggesting that 'we

look after grassland' indicates that Andrew considers his work to be synonymous with the safari park and deer park, and that this work is specialist to a specific habitat 'grassland'. The endangered grassland species at the safari park (and many of the deer species) are not native to the UK. Many of the safari park species are African, thus 'grassland' is here interpreted to mean tropical or sub-tropical savannah, or for deer, temperate grassland. Contrasted to this is the 'take' of the Greensand Ridge (i.e. Trust) which focuses on the conservation of local species, and the restoration of native habitats such as acid grassland.

The interviewee discloses however, that not all non-native species introduced by the estate have been well received. He relayed a story which explained, "*…this family, we're not very, not; quite well-known for 2 foreign animals that are understandably unpopular, especially with foresters- grey squirrels and Muntjac. Um, because, well Woburn wasn't the only place they escaped from. You know the Rothschild's, because the Victorian's were great collectors of worldwide animals, um and so they're not purely Woburn's fault, but Woburn does get the public blame for them…because they're not native. They escaped from here. And other places."* Here, two wild animals, grey squirrels and Muntjac deer (both of which live in Aspley Woods and Heaths) are presented as being unpopular due to their being 'non-native'. The interviewee concurs with this position, shown by use of the term '*understandably* unpopular'. Employment of words such as 'fault', and 'blame' indicates the interviewee feels a sense of responsibility for the integration of these non-native animals into UK ecosystems such as the study site. In stating that 'Woburn gets the public blame', Andrew presents a belief that it is common (public) knowledge these animals originated from Woburn, whilst the image of 'escaping animals' reveals a perceived lack of control. This position is defended through the supply of addition information, this being that the animals also escaped from elsewhere, thus it is not 'not purely Woburn's fault'. Additionally, the interviewee advises that the Victorians were 'great collectors of worldwide animals', thus the keeping of these animals was rooted in positive intentions, and people of this era would not have known the future implications of escaped animals.

The sense of responsibility which was observed to contribute to the interviewee's construction of the wood was also found to be perpetuated through references to nature and the environment. As previously discussed, use of estate land for raves was linked to the provision of 'choice' but in a socially responsible manner which was, "*…not harmful to others, um and you know 'others' also includes our environment, the planet we live on".* The interviewee when asked his opinion on whether human societies are part of nature, advised that, "*Mmm… probably better you know, in the rainforest, than next to Milton Keynes. Um, but yeah of course we're part of nature."*

It is here presented that those living in a rainforest are 'better' at being part of nature. This view is in contrast of those living 'next to Milton Keynes' (hence on the edge of urbanity) which whilst construed as being a lesser form of natural living, is nonetheless 'of course' still representative of society being part of nature. The view of humans as part of nature was perpetuates by a two further comments, that "…*we need to look at ourselves as the most destructive animal on the planet*", and later in the interview that, "…*we are the most destructive animal on the planet*". This presents a zoomorphic view of *homo sapiens* as 'animal', a species which is the most destructive of all animal species.

The concept of 'destruction' was again referred to in response to the question, [Q. So the relationship with nature then is to assist it?], as the interviewee replied, "*Well no, I think it's to not destroy it. Because you know, this is the, you know, we live in nature if, even if we live in the middle of Milton Keynes, or at Woburn or in a rainforest*". Stating that 'we live in nature' is representative of a holistic perspective, one that views human societies as part of a greater whole, situated within natural systems. Reference was made to three locations which represented forms of 'in nature', but which appeared to signified a spectrum of human modification of natural systems, this being the highly urbanised (represented by Milton Keynes), the rural village (represented by Woburn) and the wild (represented by the rainforest. This comment also indicates that the interviewee conceives of nature as a force which continues to replenish itself if not destroyed, and which does therefore not require assistance. This view was affirmed later during the interview in relation to conservation activities at the study site, about which the interview explained,*"…I guess the nature side of it, I want to happen naturally rather than you know protect certain things, because you know evolution can um, (we can) let nature do it.*" The position holds that nature can regenerate itself if not destroyed; a position which would appear to converge with the ethos of the safari park which works to conserve endangered species in the park, but does not focus on the ecological restoration of land. In the wood, the concept of letting 'evolution' take its course is probably a reference to natural regeneration and habitat succession which occurs around plantations. The conservation of habitats is hence understood to interfere with natural succession, whilst forestry work carried out by people 'living in nature' is part of a natural cycle.

Comments about conservation work were followed by references to the work of the interviewee's younger brother, who is presented as "*an extremely green brother",* a family member who has started environmentally orientated charities, and for whom conservation work is, "…*his passion really in life. And you know, he doesn't have children, he's you know protecting it for future generations but not his direct children and that sort of stuff. No, he's Green Russell. That's what I describe him as.*

[LAUGHS]" In calling his brother 'Green Russell' Andrew indicates that he embodies a commitment to environmental issues, and a champion of environmental causes. Making it known that Green Russell does not have children but is 'protecting it for future generations' signifies a bequest value and altruistic attitude. Andrew revealed there are "fundamental differences" between the two brothers' approaches, saying "…*We can look at the same thing, when it comes to nature, we are 180 degrees apart"* [Q. How would you describe the difference?] "*Practical and impractical. I would say. Well it's sort of you know, dreams and reality is how I would you know put it… Idealistic…what can you really you know, instead of starting off with the dream, it's where does reality kick in to what's achievable and try and get there."* Two different approaches to 'nature' thus presented; as 'practical', 'reality', 'what's achievable', and 'what you can really know'; or alternatively as 'impractical', 'idealistic', and 'dreams'. This distinction suggests that ontological and epistemological differences separate the brothers' approaches to environmental issues, and position the interviewee as having a functional, pragmatic and reason-based approach to environmental issues.

A further example of the interviewee's practical, down to earth approach is given through references to litter on estate paths, whereby it is advised that, "*I have this passion about litter, I loathe litter, so I, you know often go for a walk and come back with pockets full, and then if it's filthy, I'll go down the same walk again with a bin liner. Because it's just unnecessary. Completely unnecessary.*" He then goes on to explain, "…*my father had a passion about litter and that's how we used to earn our pocket money was going around the park with you know so much, er - a bag of you know, bin liner of litter*." Here, family values (i.e. to keep things clean and tidy, and to work hard to earn money) are presented as being relevant to Andrew's upkeep of the estate, since the approach he learned from his father in adulthood has evolved into a 'passion' in adulthood. Andrew uses strong language to explain this drive, saying that he 'loathes' litter, and shows the significance of this passions through the time he devotes to clearing up estate public footpaths through the estate. This form of responsibility also extended to the wood, since when asked, [Q. What other things do you enjoy about the wood?] the interviewee replied, "*Well generally the silence, you get peace. I hate when I find litter in them… one of my projects for the years ahead is you know, just when you feel like going out and getting your hands really dirty for 2 hours, just bin liner it. So I've started.*" This shows that whilst Andrew derives enjoyment from the 'silence' of the wood, his ability to gain enjoyment is tempered by the sense of responsibility he feels for maintaining the cleanliness of the site, which results in his taking action.

The features of the discursive object (i.e. the wood) which are invoked by Andrew in this construction (labelled 'responsibility') are summarised in Table 10:11.

Table 10:11: Summarised construction of the wood as a 'responsibility''

Analytic feature	Finding
Title given to this construction	The wood as a 'responsibility'
Features of the wood relevant to Andrew's construction	Children, roadside trees, footpath trees, multi-generational families, Woburn, houses at the edge of the wood, clear fell trees, a tiger, an elephant, grey squirrels, Muntjac deer, the Rothschilds, the Victorians, the environment, the planet, rainforest, Milton Keynes, animals, nature, litter.
Discourses invoked	Habitat succession, charitable institutions, conservation, Victorian collection activities
Andrew's interpretative context	His position as general manager of Woburn Estates, as the oldest brother in his family, having his own family to support, as a large-scale employer of local people
Andrew's subjective experience	Are things safe, empathy, leadership, what's achievable, how do we get there, upholding values
How this construction positions Andrew	Someone responsible, who is tolerant and pragmatic, who tries to unite traditional values with a modern approach
Possibilities for action which this construction allows Andrew	To balance estate objectives with various social systems, to collaborate with others and achieve something modern and which benefits diverse land using groups

10.4 DJ

10.4.1 Background

A pseudonym has been used for this interviewee, due to the mildly controversial nature of some of the material gained through interviewing. The acronym DJ has been used as the interviewee is a disc jockey of 'hardcore' dance music. This music was popular in the 1990's, when DJ first became involved in the rave scene (discussed further below). DJ lives in close proximity to the study site. He was born in a village 10 miles away, and has been visiting Aspley Woods and Heaths on a regular basis since childhood. He remembers*, "…making swings in the wood, playing in the wood, lighting fires in the wood, camping in the wood…*". His family had a passion for horses, and in his youth, DJ trained as a farrier. With his family, he made regular visits to 'Woburn Tannery' (a renowned saddlers) which were combined with horse rides through the wood. He grew up with the perception that, "*…it's a lovely place, Woburn. Do you know what I mean? It's surrounded not by just Aspley Woods, you've got Woburn Woods, you've got Woburn Sands. It, it's massive*".

As an adult, DJ moved closer to the wood, and his relationship with the site became centred on social activities, such as "…*parties in the wood, and campfires*." He visits the wood recreationally with, "…*the local boys…on the weekend, a load of beer, come out of the pub, up the wood*." In addition to these informal visits, DJ is a founding member of the 'Exodus Collective', a Luton based sound system and social movement responsible for the organisation of a series of large scale outdoor parties throughout the 1990s. This spiritually and politically motivated collective held at least 5 raves in Aspley Woods in the late 1990s before disbanding in 2000. In recent years the Exodus movement has reformed under the title of 'Leviticus', and is actively engaged in the reclaiming of disused land and property for collective housing, employment, and recreational use. Central to the movement is the concept of 'free parties', with unlicensed raves being held at locations such as Dunstable Downs, Clophill Sandpit, and Heath and Reach Sandpits. DJ is a prominent member of the organising body for the raves and festivals (although not involved in negotiations with the landowner), and is also a well-established dance music deejay at events. The Leviticus Collective are no longer organising unsanctioned raves at Aspley Woods and Heaths, and the leader of the collective (not the interviewee) is collaborating with the landowner of the site to hold licensed parties on alternative sites in the local area. Nevertheless, a rave at the study site in 2009 was organised by another collective (name withheld) with connections to Leviticus.

Consideration of the material provided by the interview with this interviewee showed that the 'discursive object' (i.e. the wood) was mentioned directly and indirectly in four ways; as i) a spiritual place; ii) as freedom from the system; iii) as a place to party, and iv) as a negotiated space. However, there was no clean divide between these categories, which manifested as a series of overlapping themes. The interviewee used two phrases repeatedly, these being '*do you know what I mean'* and *'do you know what I'm saying'*. These phrases are considered to be 'discourse particles' (Siegal, 2002), and have a pragmatic purpose (to structure and assist the relationship between speaker and listener) rather than a semantic function, thus have not been included in the analysis.

10.4.2 The wood as a spiritual meeting place

DJ introduced his view of Aspley Woods and Heaths by stating, "…*It's just a place I think that for years and years and years people have met. It's enchanting and it's peaceful*". DJ's use of the word 'enchanting' reveals a magical, captivating element to the wood, whilst being 'peaceful' has meditative connotations. The historic significance of the wood as a place people have met for 'years and years and years' introduces the interviewee's perception that the collective use of land, meeting places

and paths are bound up with this magical quality, a theme which was mentioned on a number of occasions.

In reference to a comment made about being in 'spiritual places', the interviewee was asked whether he considered Aspley Woods and Heaths to be a spiritual place. DJ responded, "*I think, definitely. Definitely. It's a, er as a massive meeting place, just, do you know what I'm saying? If you think about where the A5 is, the Roman road. How far, I mean it comes right, you know what I mean, if you go up to Brickhill, you know what I mean, it's, it's right next to Woburn Woods there, the A5, do you know what I mean. So you can imagine how many, I mean imagine, imagine you're in, imagine 1,500 years ago, right when there was columns and columns of fucking Roman soldiers marching down that A5, do you know what I mean? They'd be pulling off here.*" DJ confirms the woods are 'definitely' a spiritual place, and interestingly the rationale he provides for this is based on the wood being a 'massive meeting place'. Hence for this interviewee, meeting places are presented as spiritual places. An example is given for this reasoning, situated in relation to the nearby A5 which is a historic Roman road 'right next to Woburn Woods'. We are asked to 'imagine' the area, and the amount of soldiers that would have been 'pulling off here', leaving the road to stop off in the wood. The image of the Roman road is drawn on to provide material to aid visualisations of the area 1,500 years ago. This vision presents the wood as a historically important area, and one with spiritual significance due to the number of people ('columns of soldiers') using the site.

This idea, that meeting places are somehow spiritual places was probed further with the question, [Q Do you think there's a deeper like spiritual significance to these (meeting places in natural areas)?] DJ offered his perspective that, *"…the whole spiritual, the, you know what I mean, the closer in touch with nature you are, the more spiritual you're going to be. And I do feel that, you know what I mean? Personally that I've sat in very spiritual places. And I've been in other places that you feel something completely different. So I am a true believer in you know what I mean there is, you get good energy out of ley-lines and, do you know what I mean?"* Using the term 'in touch' suggests a type of communication with nature, thus being 'closer in touch' would indicate a more accurate and intimate form of communication with nature. This closeness makes you 'more spiritual', and so spirituality is presented as being on par with an intimate communion with nature, a position broadly synonymous with pagan belief systems. The wood is a hence implied to be a spiritual place given the opportunities it provides to get close to nature. The experience for this position is portrayed as being 'felt' rather than seen or intellectually known, as DJ advises that 'I do feel that'. Furthermore, the entire observation is depicted as being based on the interviewee's own experience. Whilst the subjective quality of this experience would

appear to render it personal and unique to this individual, it is presented as something conclusive enough to make DJ a 'true believer'.

In advising that he has sat in 'very spiritual places', and also 'others that felt completely different', DJ reveals the perspective that places can be sacred to a greater or lesser extent, and that (following on from the last point) this is related to the 'nature' available to communicate with, and also to the presence of 'ley-lines'. This pseudo-scientific term is associated with (quasi-religious) new age perspectives on 'earth mysteries', a position which views certain sites to have sacred significance based on the spiritual energy which is active at those locations. DJ believes that 'you get good energy out of ley-lines', and in reply to a question about this, [Q. What are ley-lines?] explained that, "*ley-lines are, are where there is energy. Do you know what I'm saying? Where, where geological lines meet and there's lots of energy*" [Q. So in the land?] "*In the land yeah. And like you'll find people drawn to them, do you know what I mean like? Energy places. You know what I mean? And in the old days, imaging that crossroads up there? That would have been like the epicentre, do you know what I mean? And that's where people, and that's where people always met, do you know what I'm saying?"*

We are advised that ley-lines are 'where there is energy in the land', a perspective which has similarities with the widely practiced Chinese geomancy system entitled 'feng shui'. Reference is made to the meeting of 'geological lines', and whilst it is not known what *types* of geological line are referred to (e.g. fault lines, contour lines), it is inferred that these are a source of 'energy' which can be felt by people, and which subsequently draw people to these places.. Tracks and paths are associated with ley-lines, with the importance of 'crossroads' being highlighted through the suggestion that these are an 'epicentre', understood to mean the point on the earth's surface above intersecting ley-lines which is also a meeting place for people. To understand this perspective further, the interviewee was asked, [Q. Are the ley-lines created by people congregating there, or are you saying the ley-lines were there already and people are attracted?] DJ then explained that, *"… I think they were already there and they were attracted. I think that they, I think that, er they start out there, like for instance, back in the day, you, you - a crossroads would be like where there was water… these places are, they're near to things….these people here are going this way, and there, and there's a watering hole or, you know what I mean, there'll be a path built…that's why they're there, them crossroads, do you know what I mean?*" This comment presents ley-lines as something which have the ability to influence people's behaviour. An example is given of a 'watering hole', which people would travel to, causing a path to form or be built. Paths would sometimes meet at the point of the

water, leading to the creation of a crossroads; a meeting place with increased spiritual energy.

This position has particular relevance to the wood, shown in response to the question, [Q. Can you like recall what it is about those woods when you've been there (that's special?] to which DJ explained that, "*I think that you know what I mean, I think that, as I said to you before, places…especially like with crossroads and woods everywhere, right? You can tell that these are all on big ley-lines because they've been here for years and years and years and years and years*." The woods are presented as being special due to their containing crossroads, and in relationship to Woburn and the village crossroads. Crossroads are again associated with ley-lines which represent spiritual energy. The evidence for the presence of ley-lines here ('you can tell') is that the wood and crossroads have been 'here for years and years and years and years and years'. Thus longevity is here associated with the wood being a spiritually endowed place.

In addition to the new age and pagan influenced representations of the wood, further depictions (related to the interviewee's membership of a collective) were influenced by bible-based religious systems. The interviewee is a member of the social movement 'Leviticus', which was formally known as 'Exodus'. To recap, Exodus has organised raves in the wood in the past, and Leviticus is currently collaborating with the study site landowner to enable the holding of raves on estate land in the locality. The interviewee advised that Leviticus (nee Exodus) is a, "*spiritual, spiritual collective do you know what I mean…. It's 'nice to be nice', do you know what I mean in life.* Later it was also offered that, "*…we aspired to be good.*" The presentation of this group (of which the interview is a prominent member) as a 'spiritual collective' indicates that it is a movement with shared spiritual beliefs at its core, centred upon the principle that its 'nice to be nice in life', thus being nice for its own sake, i.e. 'to be good'.

The interviewee told how the collective felt inspired by, "*…Bob Marley, he was our, was our bible really if you know what I mean. We used to listen to Bob Marley a lot, chill out to Bob Marley, and I mean the, the lyrics that Bob Marley says, were, you'd find yourself, we would find ourselves do you know what I mean? Like, you know if something had happened and like you'd find a Bob Marley lyric for it. Do you understand what I'm saying? So they really were teachings."* Bob Marley (1945-1981) created music heavily influenced by the social issues of his country (Jamaica), and by the teachings of the Rastafari religion. Marley integrated bible teachings and social commentary into his songs, thus use of these songs as 'teachings' would provide instruction in these areas. DJ reflects how the group would 'listen and chill out' to

this music, activities which appear parallel to meditative exercises based upon the messages in these songs. In this way, collective members would 'find themselves', since used the messages as a way to interpret daily events, if 'something had happened'. This indicates the centrality of the Rastafari bible-based belief system and orientation towards social action prevalent in the collective, which is important in the interviewee constructions of the wood (explored further in Section 10.4.3).

Bible teachings were presented as being important in negotiations with the landowner. Referred to in the interview as the 'keeper of the land'. When asked about term, DJ relayed a story: "*First thing, er the first thing that (named removed), my mate, said to him like when we sat down. We shook hands and he said, 'there's all books around' and he said, 'I see a, quite a religious man, bibles and that' and he went 'yeah, yeah, yeah' ... He said, 'so you'd be um, you'll know the Lord's Prayer?' He says, 'yeah, I know the Lord's Prayer'. He said, 'so thine is the kingdom, the power and the glory - who is thine? God?' He went 'yeah', 'well not you, not me'. He said, 'no, I'm completely with you though'. He (name removed) said 'so you do, you would agree that you are only the keeper of this land, it's not your, it's not your land, it's not your power, it's not your glory?' He goes,' I completely, I completely have that'. So that's the first thing that was said. Which was big, that was big*". The Lord's Prayer is presented here as being used to open negotiations which had the purpose of obtaining access to land in order to hold festival and raves. The significance of the term 'keeper of the land' is situated in the context of the prayer's clarification that land is part of God's Kingdom. As such, the landowner 'keeps' (looks after) rather than *owns* the land, an argument used to support the position that land should be made available for collective use. The interviewee here presents his view that 'land ownership' is incompatible with Christianity and Rastafarianism, in contrast to 'land keepership' which is presented as being consistent with his understanding of these religions.

Notably, both the current and former names of the collective that this interviewee is a member of (Exodus and Leviticus) are the names of books of the Old Testament, thus emphasising the religious orientation of the movement. The Book of Exodus (also the title of a Bob Marley album) tells the story of the Israelites escape from slavery in Egypt, and Moses' reception of the Ten Commandments, and the themes of freedom and rules form an important discursive feature in the construction of the wood. In addition to these biblical references, mention was made of an Eastern spiritual practice, in the statement,,"*…a mantra of ours, massive but passive. It was always massive but passive…. non, very nonviolent protest*". The term 'mantra' relates to a repeated sound or statement which is used to aid meditation or prayer. Use of the term 'massive' indicates a large, powerful mass of people, whilst 'but passive' shows that the massive were, despite their power, submissive. This statement sets the

context for the interviewee's involvement in 'nonviolent protest', and a movement presented as utilised the wood to demonstrate for social change.

The features of the discursive object (i.e. the wood) which are invoked by DJ in this construction (labelled 'a spiritual meeting place') are summarised in Table 10:12.

Table 10:12: Summarised construction of the wood as 'a spiritual meeting place'

Analytic feature	**Finding**
Title given to this construction	The wood as 'a spiritual meeting place'
Features of the wood relevant to DJ's construction	Peacefulness, people, time, the A5, Roman road, Woburn woods, Brickhill, Roman soldiers, nature, ley-lines, energy places, crossroads, paths, water, waterholes, Rastafarian teachings, the Bible
Discourses invoked	Paganism, New Ageism, earth mysteries, Rastafarianism, Christianity, Eastern spiritual practices
DJ's interpretative context	Visits and impressions of the wood from childhood, spiritual beliefs, membership of a spiritual collective
DJ's subjective experience	Sense of enchantment, imagining historical use, feeling in touch with nature, sensing good energy, aspiring to be good, obtaining meaning from landscape through spiritual beliefs
How this construction positions DJ	As being interested in history, as subscribing to a diverse eclectic spiritual belief system, not scientifically orientated
Possibilities for action which this construction allows DJ	To derive enjoyment from imaging historic use, to read the landscape and derive spiritual meaning from this, to take part in non-violent protests and land negotiations

10.4.3 The wood as perfect place for a party

Use of the wood as a place to party was said to have stemmed from the emergence of 'warehouse parties' and 'acid house' in the late 1980s. It was advised that, in the summer of 1989,*"… the summer of love they called it, summer of love, that - that was when everything hit the street, went outside. It went outside."* Sunrise, Biology and Raindance were named as 3 of the largest outdoor raves which inspired the interviewee. DJ reminisced how, *"…we didn't have any money and we were just, we were just kicking our heels about, playing music and do you know, and we couldn't afford…to go there, them places. You needed £10 to get in, you needed you know another £20 for drink. And so we used to get ourselves into whatever gathering we were. It just used to happen, and the music playing and do you know what I mean and, and, and that's how it happened. That's how it started…"* DJ here describes the

circumstances leading up to the initiation of organised parties. He and his friends wished to take part in the dance-music cultural wave which was becoming popular the UK, but were excluded due to the costs involved. The lack of money meant they had nothing to do, were 'kicking our heels about', but were able nonetheless to play the dance music which was synonymous with acid house parties. The first parties are presented as occurring spontaneously, since they 'just used to happen', with whatever people were there at the time ('whatever gathering we were').

These unplanned raves were depicted as evolving into organised events. In addition to the events in Aspley Woods and Heath, DJ explained, *"…the first party was on the Dunstable Downs, 200 people…then we used to do places like um, the sandpit in Heath and Reach, sandpit at er Clophill, um, the areas that, do you know what I mean, that where you won't hurt anybody. They were way out the way."* These semi-natural areas considered 'out of the way' were in rural locations, away from urban settlements. Hence the observation that partying here would not 'hurt anybody' is initially thought to refer to the noise and disturbance created by the amount of people gathering at night. The parties held in the wood were presented by the interviewee as a deliberate form of social action. The interviewee told how he and his collective had asked for a meeting with the landowner, in order to obtain permission to hold large-scale raves on estate land,*"…really the thing, the thing about the wood here and what you're actually talking about is that, it's a, it's not just these woods here. It's that the, a lot of the wood here are owned by the biggest land owner in Bedfordshire, which is the Duke of Bedford. Which is significant to us because when er, when we stuh, when we started partying, and doing parties all over Bedfordshire, because we're all born, from Bedfordshire, we figured well, the biggest land owner in the, in the county should be able to give us a piece of land to do that, parties, like to do them parties on…So we approached the Duke of Bedford and of course he didn't, he didn't want anything to do with us initially."*

The landowner did not reply to this request for a meeting, and in response, *"…we went to his 18th green… and next to it was the practise green, like you can practise, just practise, a nice field. Massive field…Well we, that's what we use as a car park. Use that as a car park. And we party in the wood. And we did that, until he got in touch with us. Did it every week."* The location of the wood next to the Woburn Golf Course is here presented as being exploited in order to force the landowner into meeting with the rave organisers. The parties in the wood were organised due to them being adjacent to a site of high value to the landowner, and the regularity ('every week') with which the organisers 'did it' implicitly suggests the parties were orchestrated to get the immediate attention of the landowner.

Appreciation was shown for certain aspects of the woodland environment in its own right, as shown by the comment, *"… we have had parties on flat fields, do you know what I mean and you can create a party around the flat field, do you know what I mean but it's nice to have terrain. It's nice to have backdrops. That's why the, the woods are perfect places for parties. Because the trees hold the sound, do you know what I'm saying?"* Here DJ details the specific aspect of the wood which makes it a 'perfect place to party', this being the 'terrain', which provides visual enhancement through 'backdrops', and a noise buffer since 'trees hold the sound' (Plate 10:4*).* This position shows that whilst 'out of the way' rural locations have benefits over urban sites, woods are preferential to 'flat fields'.

Plate 10:4: 'Exodus Woburn Woods, 1998' (Fantazia Rave Archive, 2011)

The interviewee was asked for more information about the selection of rural areas such as the wood, downs, and sandpits for raves. He explained that, *"…they were nice, safe places to party. They weren't upsetting"* [Q What made them nice and safe and not upsetting?] *"Well, no sharp objects to, people to hurt themselves…easy access in, easy access out, if there was ever a problem. Because it's all, you know what I mean, it's all very well putting you know what I mean 3,000 people in one place, but it's a responsibility when you do that. So everybody around had to make it safe."* This explanation focuses on the safety of those attending the rave rather than any effects on local residents. The grassed, wooded and sandy areas referred to presented as

being 'safe' due to their having 'no sharp objects', whilst the open access improved safety as allowed people to get in or out easily in the context of 'there ever being a problem'. This presents the interviewee as having a duty of care to people attending the rave, and the features of the semi-natural areas as enabling the fulfilment of these responsibilities.

The safety afforded by the outdoor semi-natural spaces was then situated in contrast to a recent nightclub tragedy, whereby,*"…they had a stampede, woman's died, too many people, just recently in Northampton…these people are paying thousands and thousands for licences and this, that and the other and do you know what I mean, and like they have one (a stampede), and that's because they're all crammed in, kettled in to a little space."* Through this statement DJ positions the raves as a similar type of event to those which occur in nightclubs. The outdoor event is presented as being of preference due to the space this affords, in comparison to the restricted and licensed nightclub environment which makes people' crammed' and 'kettled in', and which (in this situation) led to a fatality. Thus the unlicensed outdoor raves are positioned as a safer type of event that those held within nightclubs, since when open spaces do not have barriers this, "…*definitely, it definitely makes them safe."*

The safety of parties in the wood was referred to by the interviewee in the context of a fire risk. DJ explained that,*"…people say well you know what I mean they're dangerous, you could start a fire, blah-de-blah-de-blah, this, that and the other. Of course you have to be, you have to look at what you're doing, do you understand what I'm saying, but in all the parties that I, parties I've ever been to in the wood where there's always been fires, people are sensible. There's the odd, there's the odd idiot do you know what I mean but right the, the thing is, you think that, you know if you took all the police out of er, I mean, let's say a small town. Think, people think there'd be bedlam. But there actually wouldn't - people would just, they would just stand up."* Unintentional fires ('you could start a fire') are here contrasted with intentional fires ('there's always been fires') and both phenomena are situated in the context of behaviour at the parties. When 'people are sensible', fires are not presented as being a problem. In light of this, the arguments posed against the safety of parties in the wood are irrelevant to the interviewee, shown by the comments 'blah de blah' and 'this that and the other'. The onus is presented as being on personal responsibility, since 'you have to look at what you're doing'. Irresponsible behaviour is seen as marginal, the '*odd* idiot', and managed by the remaining crowd who 'would just stand up'. This informal spontaneous self-regulation is presented as being a viable alternative to formal policing (explored further in Section 10.4.4).

The raves are however presented as being on the borders of legality. When asked, [Q Did you damage property getting in?] DJ admitted the collective used to, *"Crop locks off. Pull a fence out the way, pull a concrete block out the way. Never, ever had damage you know…We would stop anybody doing, I mean criminal damage. It wasn't a part of what we did. I mean, but we did tear off gates".* Here the interviewee admits that the organising collective did damage property for access, but that this was kept to a minimum, and so believes that this does not constitute 'criminal damage'. It was also added that*, "We often left poems and money for the padlock that we'd bust off. Not always. But always cleared up."* This statement presents the collective as attempting to compensation for its actions, which were recognised to be cost-incurring (we 'left 'money') and potentially upsetting for the property owner ('we left poems').

Questions were also raised over the use of drugs, often associated with electronic dance-music culture. When asked, [Q Was there drug use?] the interview disclosed that, *"Er people did take drugs at the parties".* However, the Exodus 'crew' members were not presented as being part of this, since *"…at the end of the day, we, you can't do this, and sell drugs…we said, look, anybody who wants to call themselves Exodus, wants to be part of the crew, can't be selling drugs at all. Do you know what I mean? Just can't be done, because otherwise - because we knew they were coming for us anyway…(and) it wasn't what we wanted to do anyway. It would just be another bunch of people selling drugs, playing music, do, do you know what I mean… it would have taken away from what we were doing. Even though you know what I mean er we, I come from a drug taking culture. People were taking drugs."* It is confirmed here that people partying in the wood did take drugs, and that this is understood to be part of the 'drug taking culture' of which the interviewee is a part. However, the members of the Exodus crew are presented as attempting to resist this trend, to avoid being 'another bunch of people selling drugs and playing music'. The reasons for avoiding this stereotype are given to avoid arrest ('we knew they were coming for us anyway') and because it would conflict with the higher principles and aims of the collection ('it would have taken away from what we were doing').

Alcohol consumption was also presented as being common, shown by the comment, *"Loads of people drink, yeah. Everybody drinks. Love alcohol. But beer, it's beer, you know what I mean."* In response to this, and the acknowledgment of drug use at the wood-based parties, DJ was asked,[Q ...whether you have a theory for why there's an association between those kind of large gatherings and drug use, or smoking, or drinking…how people want to change their state when they party?] The perspective was offered that, *"People, people have done that since the day dot. And if you go to people that haven't really been touched too much by humans, you will find them gathering right. Some call it rituals, taking drugs at different times of their life, you*

know what I'm saying…Their, their whole ethos is… eating, drinking…music. I think everywhere, everywhere you'll find that, as I said, since the day dot, people have wanted to change their state of mind…I mean like it's a searching in… I mean in the head, do you know what I'm saying. Or you mean what will happen if I do this? I want to find out, type of thing…" It is here indicated that the ingestion of mind altering substances (such as drugs and alcohol) has been happening 'since the day dot'. This argument is related to evolutionary theory, and effectively legitimises the use of these substances, since usage has always happened 'everywhere', and is thus presented as a fundamental part of human culture. Evidence of tribal societies are called upon to support this position ('people that haven't really been touched too much by humans'), and the taking of substances in the wood is then likened to tribal 'rituals'. Tribal society rituals are likened to the wood-situated raves through the depiction of the 'ethos', which is characterised by the same activities at those occurring at the raves (i.e. gatherings, fire lighting, the taking of substances, eating, drinking, and music). Ritualistic consumption of illegal drugs is hence presented as a type of initiation ceremony 'at certain times in their lives', whilst the desire to 'change their state of mind' is displayed as an exploration of internal experience; 'a searching' to find out 'what will happen'.

The legality of the unsanctioned parties in the wood is situated in contrast to three sanctioned parties, which have recently taken place on arable estate approximately 3km from the study site. Whereas, *"…none of the parties have been sanctioned down there. In the wood. Do you know what I'm saying? But out of them, out of them there have been sanctioned sites. We've done 3 legal parties on his lands now. Two before, one was 2,500 people all weekend um at junction 13, one was a one day party which you had about 5,000 people for a one day party and then last week we had 500 people."* Here DJ stresses the importance of the unsanctioned parties in Aspley Woods and Heaths, which are positioned as being pivotal to the evolution of the raves into 'legal parties', which 'came out' of the unsanctioned woods parties.

The features of the discursive object (i.e. the wood) which are invoked by DJ in this construction (labelled 'a perfect place for a party') are summarised in Table 10:13.

Table 10:13: Summarised construction of the wood as 'a perfect place for a party'

Analytic feature	**Finding**
Title of construction	The wood as 'a perfect place for a party'
Features of the wood relevant to DJ's construction	Woods, the Downs, sandpits, golf course, flat fields, car park, terrain, backdrops, people, fire, fences, locks, gates, poems, money, alcohol, drugs, sound systems, food, music.
Discourses invoked	Summer of love, ruralness, property rights, access, self-regulation, dance music culture, drug culture, tribalism, evolutionary theory, mind expansion, safety, criminal law.
DJ's interpretative context	His early exposure to the dance music scene and financial situation at this time; his interest in music; leading to his deejaying and role in the organisation of Bedfordshire raves , proximity to the wood and familiarity from long-term use.
DJ's subjective experience	A sense of boredom and exclusion (pre-rave scene), responsibility, enjoyment, a sense of fairness, self-acceptance, changed state of mind
How this construction positions DJ	As someone who makes the most of available opportunities, who is self-motivated and believes people can self-regulate, who is unafraid of authority and who cares for others
Possibilities for action which this construction allows DJ	To continue to organise parties, to feel justified in taking part in illicit activities, to negotiate for future parties to be sanctioned and legal

10.4.4 The wood as exodus of the mind

DJ presented strong views on what was referred to as the 'system' or 'Babylon'; this meaning the current political, social and economic structure of Western Europe and the USA. It was advised that the collective which organised parties in the wood was originally named 'Exodus', *"…because er, Exodus is a, an exodus of the mind. Moving out the Babylon into Zion."* [Q What's Babylon?] *"Babylon, Babylon is in your head. Do you know what I mean, running down the road er that that they wanted to run down."* [Q Who's 'they'?] *"Er, the, the powers that be."* [Q Right, so 'the system'?] *"The system. The system, the tax number"* [Q So the system teaches you a way to think?] *"Yeah, that's it"* This dialogue indicates that the parties in the wood were organised by a collective who were aiming to free people's minds ('exodus of the mind') from a particular way of thinking ('Babylon') which is disseminated by institutions ('the powers that be') to deliberately control behaviour ('running down the road they want you to run down').

This way of thinking encouraged by the 'powers that be', i.e."…*what 'they're' about, what life is about*" was said to be about, *"…self, climbing up on other people, er, I mean using other people to make yourself better than them…Very, very self er obsessed, do you know what I'm saying? Whereas for instance right if you live next door to me and your kid ain't got no shoes on its feet, I'd take the shoes off my kid's feet."* Here the interviewee presents a perspective of dominant institutions as encouraging exploitation ('using people'), competition ('Climbing up'), and an individualistic ('self-obsessed') attitudes, all placed in a negative context. In contrast, a collective approach which features resource sharing is presented as worthier, something which DJ subscribes to since he would 'take the shoes off my kid's feet'. One of the functions of 'Babylon' (i.e. the way of thinking perpetrated by the system) was said to be to*,"…divide and rule. I mean you can't have, you can't have your, you need conflict, you can't have capitalism without dividing and ruling. Do you know what I mean? You can't have socialism and capitalism in the same - it don't work.*" The concept of 'divide and rule' is based on control of an area (e.g. a nation state) being secured through the safeguarding of a large power share, often through force. Powerful groups who may contest the status quo are suppressed by actions which encourage divisions ('you need conflict'), and fragment these alliances into smaller, less powerful factions. encouraging divisions to prevent alliances that could challenge the 'powers that be'. Capitalist systems (such as that enacted by 'the powers that be') are situated in opposition to socialist systems (such as Exodus), and these conflicting systems suggest that DJ regards his position to be broadly incompatible with the current UK economic and political approach.

An interest was then shown in power structures, with the interviewee mentioning the 'masons' on four occasions, such as in the comment, "…*the Masons… the architects of fucking what, what goes on…the think tanks…the people that run this country. With a puppet of a government…these people are so high, they're thinking about how they can do something now to affect in 10 years' time…Put structures in now…they're trying to see the next thing that's coming right."* This view is largely concurrent with what is termed 'conspiracy theory'; that being a discourse which regards societies as being controlled by one small powerful group who are hidden from the public. The interviewee was of the opinion that aristocratic families were often associated with the Masons, saying they are, *"…blue blood they are, do you know what I'm saying? They are as high as you, you get. Masoned up to the max!".* When probed further on this point,[Q So you think that the landowner's family is that way inclined, they're linked to that kind of thing?] the interviewee responded, *"Mmm, structure"* [Q Yeah*] "That hierarchy. Theirs are all pyramids yeah? And ours is a wheel. Right? With the goal as a centre, and we're the spokes. They build it in a pyramid. Do you know what I*

mean? Masons. So one man is at the top, do you understand what I'm saying?" This presents a view of ranked power, with ultimate authority being attributed to the individual at the top of the 'pyramid' (i.e. the Duke). Put in the context of the study site, the interviewee is of the opinion that the wood is under the control of a single individual, which may indicate an incomplete understanding of the implications of legislation and stakeholder participation exercises for landowners. This hierarchical structure is placed in contrast to the 'wheel' concept of power, which is presented as being a task oriented ('goal as centre') heterarchy, with no designated leader ('we're all the spokes').

Access to the wood has allowed DJ the opportunity to live his principles, by allowing freedom from certain aspects of the 'system'. When asked about the management of events, [Q. The parties in the wood where people light fires, do you actually have, do the organisers need to tell people the rules, or do people work it out for themselves?] the interview divulged that, *"People work it out for themselves. So what we would do, what we would do, we would find a decent place for a fire, could be lit. And we would build it, so people would understand that's where the fire is. If somebody had got a fire in a stupid place then we would go over and say, have a look. Do you know what I mean? It's not really on."* We are advised that people 'work (the rules) out for themselves' (encouraging creative thinking), find a 'decent place' to light the fire (decision making), and 'build it' so that people 'understand that's where the fire is' (collective understanding). This primitive activity of fire building is thus presented as an opportunity for autonomy, with the process of building fires being self-regulated, and socially orchestrated.

This position was again confirmed in relation to the self-management of parties in the wood (held without formal security). When asked, [Q So there's an internal order to it.] DJ responded, *"There's - of course, of course. (It's) people dealing with themselves really, you know what I mean. People, if you er, if, if it was done for you, do you know what I mean, you go to a nightclub and there's security on the doors and somebody starts fighting, nobody does nothing. Because the security are all there. Whereas if you go to one of our parties and somebody starts fighting you'll see everybody jump on the geezer, pull it apart and throw him out."* Two particularly interesting phrases used here are 'people dealing with themselves', and 'if it was done for you'. The implication is that situations such as organised club nights (which have formal security arrangements) discourage people to take action for themselves, whereas the informal circumstances of the woodland parties offer increased opportunities to self-regulate. DJ was asked whether personal responsibility was encouraged through the wood based parties, and replied, "*Course…it's down to you. You, that hasn't been, that hasn't been, that responsibility hasn't been taken away from you. Do you know what*

I'm saying?" The opportunity for personal responsibility offered by the parties is positioned as something good, not an experiences 'taken from you', with the inference here being that formally organised parties 'take away' personal power, whereas raves empower people.

The ability to conduct parties in the wood was also placed in the context of being culturally restricted by representatives of the 'system'. DJ was asked the question, [Q When you were going to these people and the police and the other groups and asking for permission, what do you think was behind their reluctance to let you have the parties?] He replied, "*It weren't so much the parties. They, they realised that we were, we were, we were trying to forge another way of life, right next to the one that they (had)."* This concept is representative of a counterculture movement, since to 'forge another way of life' indicates actions taken by DJ's group to have a lifestyle counter to mainstream society. Opposition to the parties is hence presented as a means of repression (presumably related to the 'divide and rule' concept mentioned earlier) and the dominant social ideology is positioned as prohibiting other cultures. When asked about this, [Q What was your way of life?] DJ explained that, "*Well, our way of life was, our way of life was communal living. Bringing people and resources and even funds together*." He then went on to describe the emergence of a,"...*housing co-op was born out of Exodus. Out of Exodus as its own entity*". This housing co-operative occupied ("…*squatted*") an abandoned property (Long Meadow Farm, Chalton, Bedfordshire) then, against the wishes of the authorities, used state funds (Housing Benefit) to maintain the farm (leading to its eventual purchase).

These actions were presented by DJ as indicative of the, "*… tearing up of the fabric of their society…you start to drive a wedge into what they're doing, which is what we did. You know and not only that, we were pulling people out the pubs because we were having free parties, do you know what I'm saying? (Name removed)'s fucking going into one, because they're the head honcho, major."* This comment depicts the collective's practice (using state funds for countercultural activities) as deconstructing ('tearing') the way that interrelated institutions ('the fabric') support and shape society. DJ's suggestion that 'we drive a wedge into what they're doing' presents the collectives as creating divisions in the system. DJ refers to society as 'their society', and in doing so reveals that he feels excluded and marginalised. The anti-capitalist, not-for-profit approach of the 'free parties', was said to 'pull people out of the pubs', thus offending the dominant ('head honcho') local hospitality company.

The alternative economic structure presented by the free-parties in the wood was further displayed through comments such as *"…we always held the price down. It was always £1.50 a beer, always, you know what I mean, no more. I mean water was free.*

Fruit in the morning." This comment related to the parties held at the end of the 1990s, whereas in relation to the rave held in the wood in 2009 it was advised that, "… *[name withheld]'s sound system is called One Love, 2,000 people every time they go out. They've been partying down there (at the wood)."* [Q And this is the same principles as free, or very low cost?] "*Free, yeah, free parties."* The 'Sundon Pits' parties (under current negotiation) are proposed to be chargeable, *"…once a month there will be a dance, £5 a head, for that dance. Any other time it's free."* This interviewee presents outdoor raves and collective activities generally as a ways of demonstrating against the system, as shown by the statement, "*I think…you need to bring people together, to, to demonstrate anything, see what I mean, to make a change, you need to bring people together. And now the best way of bringing people together is in er, with gatherings is with music, you know and food*." This infers the purpose of 'bringing people together' through 'music and food' is to 'demonstrate' in order to 'make a change'. This change, social action is directed at the 'system or the 'powers that be', understood here to be institutions which represent the economic, social and political structure of the UK, and represents the reverse of the aforementioned 'divide and rule' concept.

The ability to challenge the ruling forces was linked by this interviewee to locality. DJ advised *that,"…(it's a) very interesting place, um, Woburn. It's steeped in history. So is Luton and is, this part of the world has, has always had subversive people living in it*." [Q 'Subversive'? What does that mean?] "*Subversive. Means, do you know what I mean against the rulers…Steeped in history like that it is. Luton, Luton has always been very subversive to whoever's been running the capital, you know what I mean? The kings and queens."* The areas referred to (Woburn and Luton) are of personal importance to the interviewee, and it the association made between 'this part of the world' and 'subversive people' would indicate DJ identifies himself with this position. Since the local area 'has always had' subversive people, the dissident actions of the interviewee's collective are positioned as traditional and befitting to the locality.

At this point in time, DJ and his collective have moved from the organisation of illegal raves to the arrangement of sanctioned, licensed parties on Bedford Estate land. Given the propensity of the parties for demonstrating against and confronting 'the system', the question was asked, [Q Will it take away from any of it if it is sanctioned?] to which DJ replied, "*Well people say this, people say this. But it's not, it's not like that we are coming under their licences. It's like they're having to cut licences around us. We're rewriting the book.*" This comment suggests that others have raised this question ('people say this') implying that it is well-established (amongst some) that the free parties disrupt the status quo by challenging the authorities. In saying that 'we are not coming under their licences', DJ presents the view that being licensed does not

shape the movement, but is another act of shaping the system; indicated by the comments 'they're having to cut their licences around us' and 'we're rewriting the book'.

Whilst acknowledging that the collective was making concessions in order to obtain licenses, ("*…we're having to do a little jiggery pokery as well, i.e. they want well a few more fucking doormen, they want a couple more paramedics there. No problem. Do you know what I mean? It's all safety …we're all fine with that*") DJ ended with a strongly insurgent statement, saying, "*It's all the bollocks though. Do you know what I'm saying? And now we've come to fucking tell them, you know what I mean? That we're not having your bollocks. Because we'll do it anyway*." The use of swear words here emphasises the rebellious nature of DJ's position. In particular, the word 'bollocks' is urban slang for something considered nonsense or untrue, revealing the negative view of licensing procedures, and DJ's unwillingness to conform to orthodoxy. Professions of solidarity, such as 'we've come to tell them' and 'we're not having it' show a continuation of the spirit of protest, whilst declaring that 'we'll do it anyway' reveals the insurgent nature of the interviewee's position remains.
The features of the discursive object (i.e. the wood) which are invoked by DJ in this construction (labelled as 'exodus of the mind') are summarised in Table 10:14.

Table 10:14: Summarised construction of the wood as 'exodus of the mind'

Analytic feature	**Finding**
Title of construction	The wood as 'exodus of the mind'
Features of the wood relevant to DJ's construction	The powers that be, the system, the Masons, the landowning family, the government, think-tanks, the police, paramedics, nightclub security, pubs, sound systems, music, food, fires
Discourses invoked	Capitalism, socialism, the 'fabric of society', counter culture movements, conspiracy theory, divide and rule, self-regulation, protest and demonstration, licensing legislation
DJ's interpretative context	His inclusion in a socio-politically motivated spiritual collective, his personal beliefs, his past experience of authority, possible side effects of drug use
DJ's subjective experience	Critical of the dominant ideology and institutions, strength in standing up for what he believes in, slight sense of paranoia
How this construction positions DJ	Part of a powerful collective but individually marginalised from mainstream society, an activist, community minded
Possibilities for action which this construction allows DJ	To campaign for social change (such as regarding licensing), to continue to organise outdoor parties as a form of liberation and demonstration against capitalist systems

10.5 Synthesis

Chapter 9 argued that the primacy of discursive constructions to the cultural service concept is important, given that ecosystem service valuation and assessment exercises rely upon the discursive resources available to individuals, and may prioritise particular discursive constructions over others. This chapter has examined the transcripts of four interviewees in order to explore the discursive resources these individuals used to construct the study site (here termed 'the wood'). It was found that interviewees referred to a variety of features and employed various discourses which allowed them to construct meaningful representations of the wood.. These were found to be influenced by individuals' interpretative contexts (i.e. their social circumstances), and were bound up in the subjective experiences and possibilities for action available to those interviewed. As such, there was found to be an important socio-cultural dimension to the presentation of individual experiences of the study site.

Taking this into account, there were a number of parallels observed between constructions of the wood (Table 10:15) and the subcategorised representations of cultural services in terms of six subcategories identified in academic literature (Table 2:9). It is recognised that there has been an interpretative element both to the author's selection of transcript excerpts which form these constructions, and in the author's purposeful application of constructions to the cultural services framework. Nonetheless, a discussion of the parallels is thought to be helpful in order to explore ambiguities in the construction and possible effects of meaning (Williams, 1999), thereby assisting the aim of the thesis to deconstruct, explore, clarify and enhance the cultural service concept. The six subcategories are discussed in turn.

Table 10:15: Interviewee constructions in relation to subcategorised cultural services

Interviewee constructions	**Cultural services subcategories**
Pat: *demonstrator of change*; Bob: *changed place*	Science/ education/ knowledge
Pat: *spiritual affinity*; DJ: *spiritual meeting place*	Spiritual/ religious
Pat: *the real wood*; Andrew: *place for people to enjoy*; DJ: *place for a party*	Recreation
Pat: *the weight of history*; Bob: *childhood memory*	Historic
Bob: *negotiated space*; DJ: *exodus of mind*; Andrew: *commercial woodland*	Aesthetics/ art/ freedom
Andrew: *responsibility*; Bob: *tradition*	Culture/ place/ social relations

10.5.1 Science, education and knowledge

For Pat, the wood demonstrates the effects of climate change, and provides first hand sensory evidence which has parallels to the 'reference function' discussed in 2.2.1. Evidence is obtained by observing trees, the water levels in Mermaid's Pond, and the size of forest fruits. These observations are made possible by Pat's regular visits, aided by the proximity of her home to the wood. She experiences a disservice through a sense of fear regarding the potential loss of trees, but this spurs her to take action, by sharing her experiences collectively with others in the village. Pat is also aware of the impacts of land-use change, as indicated by her concerns regarding the 'eroding of old village lines' and intrusive urban development. Pat takes action, both symbolically through the traditional 'beating of the bounds' walk, and politically through her addressing of encroachment issues. Her membership of the P3 group is important to both these activities.

For Bob, the wood demonstrates the impacts of land-use change, and provides first hand evidence of the effects of mineral extraction and forestry practices. Evidence has been provided through observations on the changed contours and location of Mermaid's Pool, the sandpit, quarry reinstatement, and his experience of the forestry cycle over a number of years. These observations are related broadly to issues of modernity, as Bob's age (85 years) means he has been able to note gradual changes to local land-use practices, and become involved in community decision making through his work on the parish council.

This shows that there is convergence between aspects of the CS subcategory 'science/ education/ knowledge', and constructions of the wood as an 'indicator of change' and a 'changed place'. This is related to individuals' ability to recognise change by comparing the current to past states of the wood, and is enabled by the extended relationship each individual has had with the wood over time. There is a collective component to this aspect of cultural services, since both interviewees were found to distribute information they held on the locality with other people, and took action to influence change through involvement with community groups. This also shows the relevance of interpretative context, since Pat and Bob's ability to derive a cultural 'knowledge' service is ultimately linked to their familiarity with the wood, and close links with the local community.

10.5.2 Spiritual and religious

Two interviewees associated a spiritual or religious service with a feeling of 'being at one' or 'in touch' with nature. Pat spoke of her sense of spiritual affinity in relation to the woodland atmosphere, canopy, huge great trees, fellow men and women, pet dogs, woodland creatures, and woodland gods. DJ's provided a spiritual construction based upon the notion of the wood as meeting place. Here the relevant features of the wood were peacefulness, nature, energy places, ley lines, cross roads, paths, water, people, time and the old Roman road.

Both interviewees constructed their experiences with reference to a variety of spiritual discourses. Both referred to bible-based belief systems, Pat's as a practicing Catholic and DJ through his membership of a Rastafari-inspired spiritual collective. Both combined these beliefs with aspects found in paganism (woodland gods and nature as source of spirituality) and eastern spiritual discourses (meditation and mantras). Scientific discourses were also invoked by Pat (evolutionary theory, symbiosis), whilst DJ mentioned a pseudo-scientific discourse (energy lines in the earth). Further reference was made by Pat to folk discourses (fairy tales, mythical creatures, and 'common sense'). Together these varied discourses enabled participants to construct and demonstrate their experience of the spiritual aspects of the wood. These constructions revealed there to be both individual and collective components to the experience of a cultural 'spiritual/ religious' service. Pat's subjective experiences (feelings of peace, safety, clarity) and DJ's (individual sense of enchantment and good energy) were combined with collective experiences of not being alone, being at one, and camaraderie (Pat) and observed relationships between earth energies, social gatherings, and the development of infrastructure (DJ). This is interesting as reveals that despite the demographic, gendered and educational differences between these individuals, the spiritual constructions presented were not dissimilar. Both individuals' experiences were fed back and used to improve interviewee's respective social groups.

This analysis shows there to be a convergence between aspects of the cultural 'spiritual/ religious' service, and constructions of the wood as 'spiritual affinity' or 'meeting place'. It is notable that multiple collective teachings and discourses were needed to construct the wood as a spiritual place. Given that cultural contexts prioritise certain religious and scientific perspectives over others, the varying social power attributed to these discourses may lead to some being disregarded, despite their importance as discursive resources.

10.5.3 Recreational

All four interviewee's constructed the wood in ways which converged with the cultural 'recreation' service. Bob recalled a *historic* recreational practice from the early 1900s, whereby people would collect samples from the different layers of coloured sands in Aspley Heath Sandpit and display these in glass jars. Pat presented her own *current* experience of recreational walks in the wood. Andrew's account was based on the *provision of access* for local people. DJ presented a *specific recreational activity* (parties) held both in the wood and at other rural locations.

The three interviewees that provided detailed accounts of recreation in the wood (Pat, Andrew and DJ) each referred to differing aspects of the wood in relation to recreation. For Pat's personalised experience of recreational walks, relevant features focused on ecological aspects of the wood at a detailed scale; wildlife, birdsong, tactile sensations, wild fruits, ancient deciduous woodland, diversity, and beauty. These features reflect Pat's close familiarity with the wood and her regular visits. For Andrew, referenced features reveal a wider scope involved with the provision of access to land, and a need to coordinate different user groups with estate management, and included nature, land, fields, the wood as an access area, different user groups, councils, rangers, the Greensand Trust, people who live locally, and 21st century Britain. DJ referred to features which were broadly linked to other people. These included a series of features generic to rural locations which enable parties (i.e. being away from urban areas; safe, and accessible), and certain special features of the wood which makes this venue a 'perfect' place for a party (the terrain as a visual backdrop and noise buffer). A further subset of features was referred to by DJ, relating to unauthorised use and the need to gain access to land (fences, locks, gates).

The way that these transcripts have been analysed presents Pat's experience as individual, but Andrew and DJ's experiences as collective and collaborative. Notably Pat had a higher level of familiarity with the site, and through this derived an individual experience of beauty, peace, appreciation, magic, relief and emotional release from visits. Andrew was observed to derive a sense of positive inspiration and of rightness from his co-ordination of recreational access for others, this being related to his role as head of the estate and participation in various resource regimes. DJ was able to change his sense of boredom and exclusion by organising parties for others, and now experiences a sense of responsibility, enjoyment, fairness, self-acceptance and (during parties) a changed state of mind, related to this interviewee's involvement in the Exodus/ Leviticus collective.

This analysis shows there to be a convergence between aspects of the cultural 'recreation' service, and various constructions of the wood as 'real woodland', as a 'place for people to enjoy', and a 'perfect place for a party'. These constructions reflect different levels of cultural services; both as individual experiences, and as experiences related to the collective provision of recreational access for others. The collective aspects of cultural 'recreation' service are perpetuated through social institutions, and as such, collective and individual elements are arguably co-dependent.

10.5.4 Historic

Three interviews provided accounts which referred to the historic aspects of woods. Whilst DJ presented his image of the wood used by Roman soldiers (related to the location of the site close to the A5 Roman road) Pat and Bob provided detailed accounts relating to their learned and personal histories.

Pat presented herself as having an interest in local history (particularly connected to village boundaries and the Second World War) and referred to features in accordance with this interest; the woodland, people alive in the past, village boundaries, other local villages, requisitioned village houses, ammunition, maps, photos and Bletchley Park. Unlike other aforementioned aspects of cultural services (science/ knowledge, spiritual/ religious, recreation) Pat's current proximity and familiarity did not allow her to access a personal store of historic experience. Rather her interest in history, initiated by a significant childhood experience (seeing a photo of a concentration camp), shaped her outlook, and was presented as leading to her choice in education and voluntary work later in life. As such, Pat's experience of the wood was informed by her degree in history and work as an archivist at Bletchley Park, and was perhaps influential in the references to discourses on Nazism, military operations, and village traditions. This holistic experience (including childhood memories, education and employment) most likely contributes to the sensed 'weight of history' and 'rhythms of life' which formed part of Pat historic understanding.

Bob constructed the wood through childhood memories (approximately 70-80 years ago) thereby presented a personalised historical account. Referenced features included the wood (as a whole), a specific cedar tree, the fuller's earth quarry, footpaths, the keeper of the wood, the parish council, his parents and his school, and involved reflections on past recreational use of the wood for walking. For Bob, these historic features (many of which do not exist today) were personally accessible due to his age and lifelong residence in a woodland bordering village. As such, rather than applying knowledge/experience to the wood in order to produce a cultural 'historic'

service, Bob embodies history itself, as he is arguably a vestibule of first-hand experiences of how wood has changed over time, and how life was in the past. In this construction, Bob used discursive (language) resources to give a personal account of social change, revealed discourses on age and mobility to be of relevance to access, and provided a critical perspective upon the modern day use of cars and 'idiot boxes' (i.e. televisions).

This analysis shows that there is convergence between aspects of cultural 'historic' services, and constructions of the wood as the 'weight of history' and as a 'childhood memory'. It shows that history may be learned and applied, or derived from personal experience. The profound impact of Pat's childhood experience (her father's sharing of his own experience), and Bob's position as a repository of local knowledge together highlight the importance of *transference* in cultural 'historic' services. Sharing experiences with other members of the local community contributes to a store of historic local knowledge which resides inside living recipients of cultural services, and which relies on discursive resources to document or transfer knowledge to other individuals.

10.5.5 Aesthetic, artistic and freedom

The individuals interviewed for this research did not present the wood as encouraging aesthetic or artistic experience. The concept of 'freedom' was however constructed through two accounts; by Bob's recounting of memories related to PROW negotiations and public use of the wood, and DJ experience of an 'exodus of the mind'. In contrast, Andrew's construction of the wood as 'commercial woodland' (i.e. a provisioning service) may be interpreted as providing structure and control, thus is discussed for its merit as a construction which potentially opposes freedom.

Bob made references which constructed the wood as a type of negotiated place. These related to his and his father's positions on the local parish council, and in the context of PROW court actions to protect access to the wood. As such, features which were referred to included different types of paths (e.g. well-worn tracks, unofficial paths, private/ public paths) and various people and institutions. Discourses which were employed related to the property rights systems and public rights to path access, and on the ability to mediate these rights through the legal system. DJ's construction focused on a desire to escape the pervasive influence of institutions upon free thought. In this depiction, the wood represented freedom as is away from urbanity and the 'powers that be' (i.e. controlling forces and systems of surveillance). Discourses invoked by this construction included a critique of capitalism, conspiracy theory, divide and rule, self-regulation and the right to protest. The construction of

the wood as a commercial wood employed discourses of capitalism in a positive manner, along with anthropocentrism, and a critique of social designation systems. This construction focused on trees as a source of income, maintained in accordance with local community groups, economic markets, and natural systems. The commercial wood is thus a regulator of space, but is itself subject to social and natural forces. These constructions reveal the importance of interpretative context in the wood as a provider of freedom, since both Bob and DJ's positions were influenced by their membership of social groups (local council and counter-culture group).

This analysis shows that there is convergence between aspects of the cultural 'freedom' service, and construction of the wood as 'negotiated place' and as an 'exodus of the mind'. This is in contrast to 'commercial wood'; a provisioning service which regulates space and, although embodying a form of 'the system', is able to exist concurrently with cultural 'freedom' services. Freedom to access private land is contested, and constantly shifting. It requires protecting, may be taken at force, enforced, and forcibly removed. However, the wood (and other rural locations) are understood to provide a haven for seekers of unregulated space, and an outlet for the activities of marginalised groups.

10.5.6 Culture, place and social relations

Constructions of the wood as 'tradition', and as 'responsibility' were found to correspond with aspects of the cultural 'social' service concept. Neither of these constructions related to *direct experience* of the wood; but were instead concerned with the presentation of organising activities which related to access *for others* to cultural services.

Bob constructed the wood as tradition, a presentation largely influenced by his interpretative context. Bob's father served in the local church, and held a position on the parish council, and Bob followed suit; taking a position in the church, and on both parish and district councils. Bob is subsequently positioned as a respected village elder, and a source of local expert advice on many matters (including the wood), someone people would go to if they required information; a position fulfilled by his father before him. Features referred to were those that were negotiated by the council, or which were important to the community such as footpaths, forestry processes, the quarry, the sand pit, and the landowner; whilst discourses employed included historic property rights systems, PROW legislation, and social responsibility. This construction highlighted the work of councillors for protecting public rights of access to natural resources, and the increased responsibility afforded to such

individuals given the historic tradition of *verbal agreements* for maintaining land rights, conserving resources, and being vestibules of knowledge.

For Andrew, the wood was presented as a form of responsibility, amongst a plethora of other responsibilities related to his position as landowner of the site and head of the entire estate. Referenced features of the wood reflected this range of responsibilities, such as for health and safety *(roadside* trees and *footpath* trees), for people associated with the wood (different user groups, the access agreement crew, estate employees), and the ecological impacts of the estate and society in general (non-native species, the environment, rainforests, the planet). Andrew's broadened perspective thus incorporated a variety of discourses, including evolutionary theory and habitat succession, social (corporate) responsibility, and legislation; and were placed in the context of his aim to unite traditional values with a modern approach.

It is also noted that all aforementioned constructions which converged with cultural services subcategories were each found to have a collective (and thus social) element to them (Table 10:16).

Table 10:16: Examples of collective components of cultural services subcategory-related constructions

CS sub-category	**Selected examples of collective component present in constructions**
Science/ education/ knowledge	Observing evidence of climate change and sharing with the local community
	Observing and taking action to prevent upon encroachment
Spiritual/ religious	Counselling others and providing comfort and emotional release
	A sense being 'at one', camaraderie, and of the wood as a meeting place
Recreation	Co-ordination of public access
	Organisation of large-scale parties
Historic	Conducting guided historic walks
	Sharing of historic information verbally, and through production of leaflets
Aesthetic/ art/ freedom	Court action to protect public right to access the wood
	Counter-culture gatherings as 'non-violent protest' to initiate social change

This analysis shows there is convergence between the 'social' elements of cultural services (i.e. subcategory 'culture/ place/ social relations') and constructions of the wood as 'tradition' and 'responsibility'. Whereas both constructions of the wood as tradition and responsibility bestowed interviewees with *individual* experiences, these

were essentially related to relationships between people, and consideration of features of the wood as they affected other people. Here then, the onus of cultural 'social' services is less related to ecological non-human biotic and abiotic woodland features, and more focused upon human interactions and social systems. Furthermore it has been shown that this social dimension is present with all other constructions which related to cultural services subcategories. As such, it is concluded that social practices such as traditions, rituals, and institutions (and the discourses these perpetuate) are carriers of cultural meaning which transfer scientific, educational, religious, recreational and historic cultural services between individuals. This emphasises the prominence of discursive resources in the dissemination of cultural services within societies.

10.6 Conclusions

This chapter looked at the discursive resources which individuals used to verbally construct Aspley Woods and Heaths. The verbal constructions of the wood could be matched with previously identified aspects of cultural services, such as science/ education/ knowledge, spiritual/ religious, recreation, history, freedom and place/ social relations (Table 10:17). The only exception to this, at this particular site and for the selected interviewees, were aesthetic/artistic aspects.

Application of Foucauldian discourse analysis (FDA) technique revealed that there were links between the woodland features which were referred to during interviews, and the various types of constructions offered by individual interviewees. Since in FDA, constructions are considered to be purposeful (allowing for the construction of a subject position and social action) the implication is that assessments of specific environments and features (such as choice-experiments) are based upon non-neutral and subjective information.

Table 10:17: Aspects of constructions which contribute to cultural services theory

CS sub cat.	Findings which supplement published cultural services categorisation
Science/ education/ knowledge	This category is related to evidence testing using multi-sensory data. It is achieved through first hand observation (e.g. on the effects of climate change and land-use impacts). This was a source of informal 'real-world' evidence (e.g. on environmental issues) for interviewees.
Spiritual/ religious:	This was presented as a 'feeling' or 'sense'. It was characterised by a *merging* of sensory experience (e.g. synaesthesia) a *merging* of folk discourses (e.g. anthropomorphism, zoomorphism, fairy tales, pseudo-science), and a *merging* of religious discourses, (e.g. new ageism, bible-based/ pagan/ eastern religious discourses). Communication of this category relied on the use of multiple discourses.
Recreational:	This was based upon a co-dependent relationship between individual experience and group activities.
Historic	Findings highlighted the importance of 'embodied history' (people as vestibules of historic knowledge due to their memories of place), and the application of learned knowledge in constructions of place-history.
Aesthetic/ artistic/ freedom	Interview data provided little evidence of art or aesthetic services. Evidence on freedom showed that public access was described as a right which needs upholding, that natural places give freedom from institutional influence, and that the unregulated nature of such places provides an outlet for the activities of marginalised groups.
Place/ social relations	This was characterised by a strong theme of *responsibility*; legal, social, and personal. All cultural services subcategorised experiences and actions were shaped by interpretative (socio-cultural) contexts, social discourses and opportunities provided by social institutions. As such the sociocultural service overarches all aspects of cultural services.

The analysis also shows that constructions were related to interpretative contexts, since the socio-cultural background of interviewees appeared to influence both the experience had, and the communication of that experience during interviews. Furthermore, interpretative context was found to affect subsequent social actions, since the social groups that interviewees were a part of provided opportunities for action and the dissemination of first-hand experience. As such, it can be argued that that were three components to constructions which were *all* based upon interpretative 'socio-cultural' context. These are an (individual) 'evidence gathering' component, a (collective) 'discourse' component, and a (collective) 'communication' component. These components are proposed to encapsulate the process of cultural services creation (Figure 10:1).

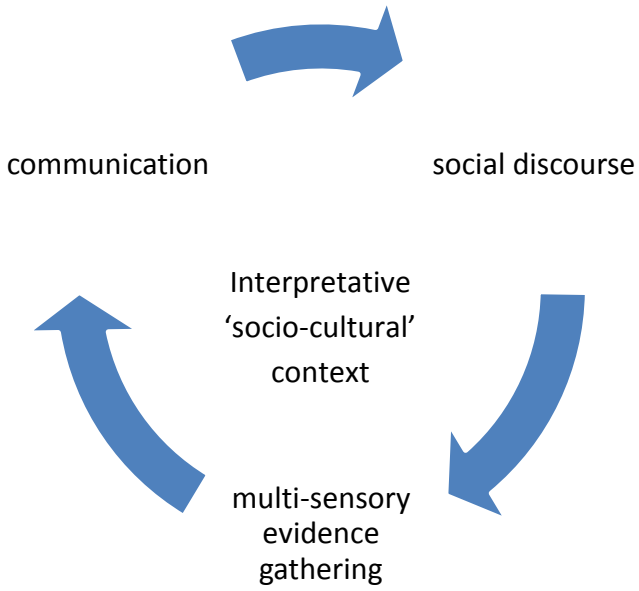

Figure 10:1: The cultural services creation process

This process (Figure 10.1) is understood to be cyclical . It is put forward that social discourses (which are in flux), are grounded by the experiences provided by natural environments. This appears to fulfil a need within people, to receive affirming/ refuting information which enables them to challenge social discourses and achieve autonomous individualised perspectives. This study shows that natural places may provide an important environment for grounding, since are less 'humanified', and thus less dependent on social discourses themselves which would confound the affirming/ refuting information. If this is the case, it could argued that the absence of social discourse (humanification) in a place is positively correlated to its value for providing grounding information to help develop autonomous individual perspectives.

10.7 Chapter summary

Findings from the discourse analysis of interviewee transcripts show that this material, when selectively interpreted, did show reasonable correspondence between constructions of the wood and subcategories of cultural services. The analysis also provided additional insight into cultural services discourse.

Interviewees referred to particular features and discourses which enabled them to present purposeful constructions of the study site. The socio-cultural background ('interpretative context) of interviewees influenced experiences described, the discourses used to communicate experience, and subsequent social actions.

The evidence presented in this chapter has been used to construct a theory on the process of cultural services creation. The theory proposes that cultural services creation is based upon interpretative 'socio-cultural' context, and was found to have three components that operate in a cycle; individual 'evidence gathering', collective 'discourse', and collective 'communication'.

It is proposed that, due to their less 'humanified' character, natural environments provide important opportunities to ground social discourses. This is proposed to fulfil a need within people; to receive affirming/ refuting information which enables them to challenge social discourses and achieve autonomous individualised perspectives.

11 Synthesis

This thesis has undertaken a constructivist exploration of the cultural service concept. It began with a literature review (detailed in Chapter 2) which showed that there was a paucity of primary cultural services studies; that conceptual problems had impeded the assessment of this service in some ecosystem valuation studies; and that the epistemological variance observed between this and other services had instigated calls for its omission from ecosystem service frameworks altogether. These observations led to an overarching research question namely 'what are ecosystem cultural services?', and a set of subsidiary research questions:

1. How are cultural services defined?
2. Do academic definitions fit the phenomena observed in the field?
3. How might the characterisation of cultural services be improved?

These questions together initiated the aim of the thesis, to deconstruct, explore, clarify and enhance the academic concept known as an ecosystem cultural service. This aim was achieved through fulfilment of the following research objectives:

1. To review a range of published literature relating to cultural services
2. To identify cultural services-type phenomena occurring in a multi-habitat site
3. To identify contextual circumstances influencing the cultural services of a site
4. To review institutional arrangements organising access to the cultural services of a site
5. To review the role of discursive resources in representations of the cultural services of a site

The research questions were met through fulfilment of these objectives, by applying of a flexible, phased approach to data collection, analysis, and results presentation throughout the thesis (Figure 11:1).

This chapter synthesises findings from the entire thesis. It begins by showing how each research objective has been met (Section 11.1). It then seeks to fulfil the aim of the thesis, to clarify (Section 11.2) and enhance (Section 11.3) the cultural services concept. These sections together answer the overarching research question 'what are ecosystem cultural services', a question which is answered concisely (Section 11.4) by highlighting key findings from the thesis.

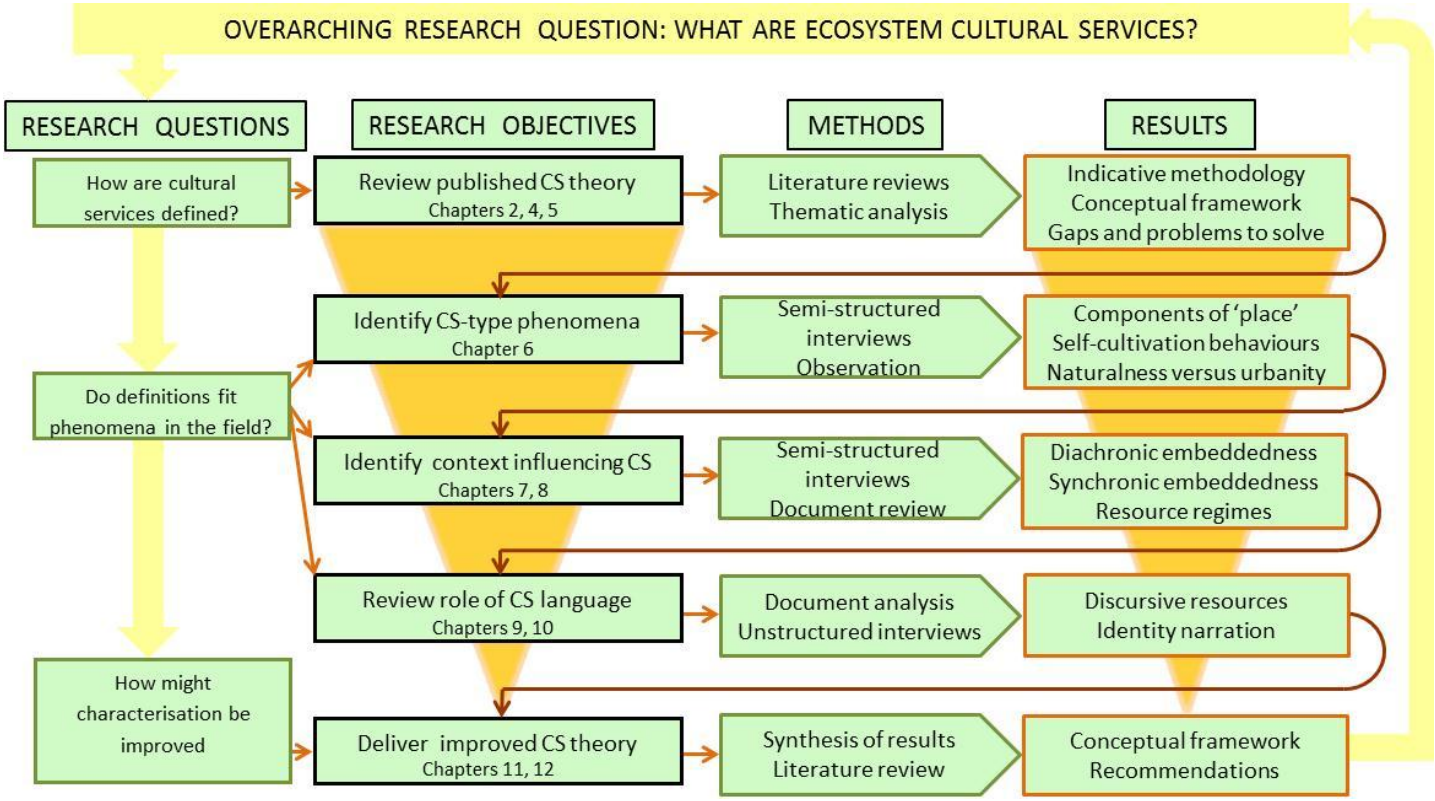

Figure 11:1: Overview of thesis research questions, research objectives, data collection methods and results

11.1 Fulfilment of the research objectives

11.1.1 A review of cultural services-related literature

Three distinct sets of literature were reviewed. Initially, the principal documents relating to ecosystem function and service frameworks were examined. This revealed a range of cross-literary discourses inherent to the cultural service concept, and provided an indicative methodology and conceptual framework for the thesis. A commonly-cited definition of cultural services was identified, this being the 'nonmaterial benefits obtained from ecosystems' (MA, 2005). A number of gaps and problems were highlighted, such as the absence of theory regarding processes of cultural services creation; problems of characterisation; questions as to how the service relates to individuals, groups and societies; and questions as to the position of this service within ecosystem service approach frameworks. Following the initial review, a further set of literature was examined which expanded upon the themes identified as being inherent to the cultural service concept, i.e. evolutionary theory, modernity, health, wellbeing, higher needs, and economic valuation. Each of these discourses was found to be a contested and evolving area of academic concern in its

own right. The third stage of literature review focused on interdisciplinary empirical studies associated with people-nature interactions. Research findings of relevance to the cultural service concept were identified in the areas of restoration, therapeutic health, metaphysical experience, multi-faceted social benefits, geo-spatial and sensory features, and disservices. These findings challenge and enhance the current academic conceptualisation of ecosystem cultural services, as discussed in Section 11.2.

11.1.2 The identification of cultural services-type phenomena

Data was collected which enabled the identification of cultural services-type phenomena, through semi-structured interviews and marginal participant observation in a multi-habitat site (Aspley Woods and Heaths). The concept of 'place' was used as a construct to examine activities, features and experiences associated with cultural services. A range of activities allowed visitors to engage with different ecological and anthropological features of the site. Subsequent experiences reported by site visitors were categorised as being *cognitive, creative*, *communicative*, *retrospective*, *intuitive,* and *regenerative*; and these supported and enhanced the current conception of cultural services. Some aspects of place did not however fit neatly with cultural services discourse. Reported experiences were not always a 'benefit' (including for example unpleasant sensations); nor were they 'nonmaterial', as involved multi-sensory (interoceptor and proprioceptor) experiences, were related to physical activities, and were often linked with the pursuit of improved physical fitness. There was a perceptual quality to interactions with features of the environment (related to comparison, naturalness, sensations on the cusp of conscious awareness, and professional training) which meant that this site was not in itself the sole source of cultural services-type experiences. This finding was explored through further objectives.

11.1.3 The identification of contextual circumstances

A range of contextual circumstances were identified which influenced the manifestation of cultural services as related to specific features of the study site. These features (see Section 6.2) were shaped by various diachronic (historic) and synchronic (current) processes. Past natural forces were shown to have created an underlying bedrock which shapes topography and natural land-cover at the site today. This bedrock influenced historic land-use activities (quarrying, property-rights structures, forestry, health-tourism) which impact upon the *current* topography, plantation, rights of ways network, settlement and local economy today. The *current* context of the site additionally influences the provision of cultural services therein. Pressure from urban spread, changes in legislation, decreased funding and political

restructuring have affected the way the site is managed for public access. Criteria set in relation to grant funding, economic markets, and legislation for biofuels affect stocking and felling decisions at the site. The scarcity of particular habitats influences perceptions of habitat value and subsequent conservation and restoration activities. These issues affect the manifestation of the site, and hence the features that are available for cultural services-type interactions. As such, ecosystem cultural services are concluded to be a contextually relational phenomena, which are dependent on and embedded in wider geospatial, social, and temporal frameworks.

11.1.4 A review of institutional arrangements

Institutional arrangements which organised access to the cultural services of the study site were reviewed using a 'resource regime' construct. Of those regimes identified, an access agreement (arranged between the landowner and two local authorities) was identified to be central in enabling public access to cultural services-type benefit streams. In some cases these benefits presented users with a source of income; in contrast to the right to use and derive income from the site's *provisioning* services which were the exclusive privilege of the landowner. Analysis showed that resource regimes in effect at the site were influenced by historic property rights structures (e.g. commons) and the current concerns of institutional stakeholders. Byelaws and path network maps (intended to structure visitor activities) were observed to reflect the different objectives of organisations involved in the management of resource regimes; and disparities (between objectives) led to incidences of tension between representatives of these groups. The notion of free access to cultural services was contested (at this site), since analysis revealed instances of cost externalisation correlated to visitor numbers. Failures of the resource regimes to control access to site resources resulted in a free-rider problem, and a higher supplementation of running costs by local authorities. Injuries to users and various forms of unsanctioned behaviour led to a reliance on emergency services, whilst certain site improvements (undertaken with charity or lottery funding) revealed the presence of further embedded forms of site investment. These issues challenge the current view of cultural services as a non-consumptive process, instead raising the notion that this ecosystem service be considered a multi-stock phenomena.

11.1.5 A review of the role of discursive resources

The role that discursive resources played in representing the cultural services of the study-site was reviewed through an analysis of discourse inherent to site documents and visitor transcripts. This showed that the same study site could be described in a multitude of ways according to the context and purpose of the author. In documents,

analysis showed that discursive resources were purposefully employed to achieve a particular social action, such as designation, policy making, grant acquisition, monitoring and knowledge sharing. Variables which documents referenced in order to construct the site (e.g. site name, location, physical features, social/ ecological processes, relevant time frames) were *socially constructed*, and were presented in forms (e.g. qualitative, quantitative, graphic) which typically supported the underlying purpose of each document. In visitor transcripts, depictions of the study site broadly emphasised features related to the social context and life experience of the interviewee. Whilst accounts of the site (and related social action) were heralded as individualised perspectives, each appeared linked to the membership of community groups, and relied on discourses from wider social sources. A hypothesis is put forward which argues that individuals use the site to ground and integrate socially acquired discourses. These findings suggest that socio-cultural processes are fundamental to all historic, scientific, artistic, recreational and spiritual cultural services-type phenomena. They show that ecosystem service approaches which rely on cultural services-derived information are rarely neutral, objective accounts of the environment, since they reflect the richness of discursive resources available to individuals, and the cultural contexts which prioritise particular discursive constructions. In order to ensure a comprehensive assessment and valuation of cultural services, it is advisable to ensure that any evaluation adequately captures the diverse, and often marginal, perspectives on nature and its benefits.

11.2 Clarification of the cultural service term

The research objectives described above were met for the purpose of achieving an overall thesis aim, that being: 'to deconstruct, explore, clarify and enhance the academic concept known as ecosystem cultural services.

The academic concept being deconstructed, explored, clarified and enhanced was that of 'cultural services', initially defined as the 'nonmaterial benefits obtained from ecosystems' (MA, 2005). Results from the thesis challenge this definition on four counts. Firstly, the notion that cultural services are *nonmaterial* is disputed, since this study has shown that the phenomena involved physical activities, physical sensations, and physical interactions with ecosystems. Interactions were *managed* (so requiring resource inputs), and resulted in physical impacts upon ecosystems. A new perspective is thus offered; that cultural services are a consumptive, multi-stock process. The notion that cultural services are *benefits* is challenged, since this study showed that visitors experienced negative psychological states and physical injury in their pursuit of cultural services. Additionally, the organisation of access to cultural services has (historically and currently) created tension between stakeholders. A new

perspective is thus offered; that the cultural services definition may be improved by removing the term 'benefit', since doing so decreases the likelihood of conceptual bias. The notion that cultural services are something that are *obtained* is disputed. This study showed that information flows were not unidirectional, but were a result of reciprocal exchanges between people and features of the environment. A new perspective is thus offered; that cultural services are a continuous process of interaction on multiple levels. Finally, the notion that cultural services are *from ecosystems* is challenged. It was shown that ecosystem features were shaped by wider processes *outside* the timeframe and geospatial area of the study site, and that individual interactions (and thus experience) reflected interpretative socio-cultural contexts and social discourses. A new perspective is thus offered; that cultural services are not entirely of ecosystem origination, but are a relational phenomenon that are best studied in context.

The outcome of these findings is such that the current definitions of cultural services (MA, 2005; UK NEA 2011) are rejected as accurate descriptors of the ecosystem cultural services identified through this study. It is hence proposed that this academic concept be reconceptualised as a continuous (Chapter 6), contextually situated (Chapter 7) multi-stock process (Chapter 8) of interaction which occurs on multiple levels simultaneously; and be redefined as the ways that humans use discourse to construct and communicate perceptions of nature. This shift is beneficial, since when we recognise our understanding of ecosystem services is based upon cultural services as *discourse,* we allow for a pragmatic, problem-based approach to ecosystem problems which can embrace a variety of paradigms and incorporate those which are most helpful and fit for purpose.

11.3 Enhancement of the cultural service term

In order to fulfil the aim of enhancing the cultural service concept there are two issues which must be addressed. The first is based on the observation that the study of ecosystem services (i.e. provisioning, regulating and supporting) is itself representative of *cultural* services in action. This is important, since the "…classification of nature into different types of ecosystems does not stem directly from nature itself" (Turnhout, 2009: 404); and thus, "…instead of fixed notions of scientific validity, objectivity, usability and policy relevance that can be attributed to the quality of ecological indicators themselves, the effectiveness of ecological indicators now becomes a social matter" (Turnhout, 2009: 405). Accepting that ecosystem service approaches are forms of cultural services highlights the need for *reflexivity*, and predisposes us to an aim which is not to seek objective 'truth', but rather to seek workable solutions for identified problems, such as environmental degradation (de

Groot, 1987), inequality in access to resources (MA, 2011), and levels of lifestyle-related mental and physical ill health (European Commission, 2005; NHS, 2010). The second issue concerns the insight previously developed; that ecosystem cultural services are best understood as a continuous, contextually situated multi-stock process of interaction which occurs on multiple levels simultaneously. Without further definition, this statement may refer to any part of an exchange between two or more entities, rather than to a specific process of interaction between human cultures and ecosystems. This situation demands further characterisation and definition of conceptual boundaries for cultural services, and constitutes the subject matter for the remainder of the chapter.

11.3.1 Interpretative cultural service repertoires

The generic nature of the title 'cultural services' means that subcategorisation is an important conceptual aid for understanding the remit of this ecosystem service. However, literature presented this ecosystem service as an assortment of activities, institutions, and psychological states which, when combined with reference to evolutionary theory (with its prioritisation of biological and genetic influences on culture) creates a hierarchical confusion which arguably impedes understanding. Existing subgroups were thus re-examined in light of literature (Chapters 2, 3.4.3, 5) and primary data (Sections 6.3, 10.5). Areas of convergence subsequently led to the identification of six cultural services-type 'interpretative repertoires', these being defined as,"…recurrently used systems of terms used for characterising and evaluating actions, events and other phenomena" (Potter and Wetherell, 1978: 149). The interpretative repertoires which were identified within the cultural service construct were termed cognitive, retrospective, intuitive, creative, communicative and regenerative repertoires (Table 11:1).

There are a number of reasons why the shift from subcategory to interpretative repertoire is conceptually beneficial. The concern of repertoires is for, "…the organisation of phenomena… traditionally understood in terms of attitudes, beliefs and attributions" (Potter and Wetherall, 1987: 146). This has the effect of levelling subcategories so that these are no longer a mix of activities, institutions and psychological states, and any social implications can thus be understood from this basic position. The new arrangement manages to draw together different literatures and consolidate the scope of expert views on cultural services. It is also epistemologically consistent with the view of humans as integral to ecosystems (discussed further below).

Table 11:1: Interpretative repertoires associated with cultural services

INFORMATION FUNCTIONS	CULTURAL SERVICES	INFORMATION FUNCTIONS	CULTURAL SERVICES	CULTURAL GOODS	CULTURAL SERVICES
de Groot *et al*, 2002	**Alcamo, 2003**	**Chiesura, 2004**	**MA, 2005**	**Church *et al*, 2011**	**King, 2012**
Science & education	Knowledge systems Education values	Norms (& values)		Education and ecological knowledge	**Cognitive repertoires**
Historic & Spiritual	Cultural heritage	Ideals	Heritage values	Heritage	**Retrospective repertoires**
	Spiritual & religious value	Self-development (Norms &) values	Spiritual services	Religious and spiritual	**Intuitive repertoires**
Aesthetic Information Artistic	Aesthetic values Inspiration	Freedom	Aesthetic appreciation Inspiration		**Creative repertoires**
& Cultural	Cultural Diversity Sense of Place Social relations	Cultural Identity Social contact	Cultural identity		**Communicative repertoires**
Recreation	Recreation & Tourism	Recreation Psycho-physical health	Recreation & tourism	Leisure recreation and tourism	**Regenerative repertoires**

Nevertheless, whilst the 'interpretative repertoire' heuristic is a useful way of structuring the theory proposed, the phenomena it is intended to represent has conceptual overlap, and repertoires are hence considered to signify fuzzy rather than discrete categories. Furthermore, whilst the proposed theory has *emerged* from the research findings, it has not been *tested* through the thesis. As such there are no claims made as to its validity; rather it is introduced to inspire and generate discussion on how we view cultural services.

This thesis argues that the cognitive, creative, retrospective, intuitive, communicative and regenerative repertoires associated with cultural services are related to processes of reciprocal information exchange with the environment external to the person, as structured by embodied discourse (Figure 11:2).

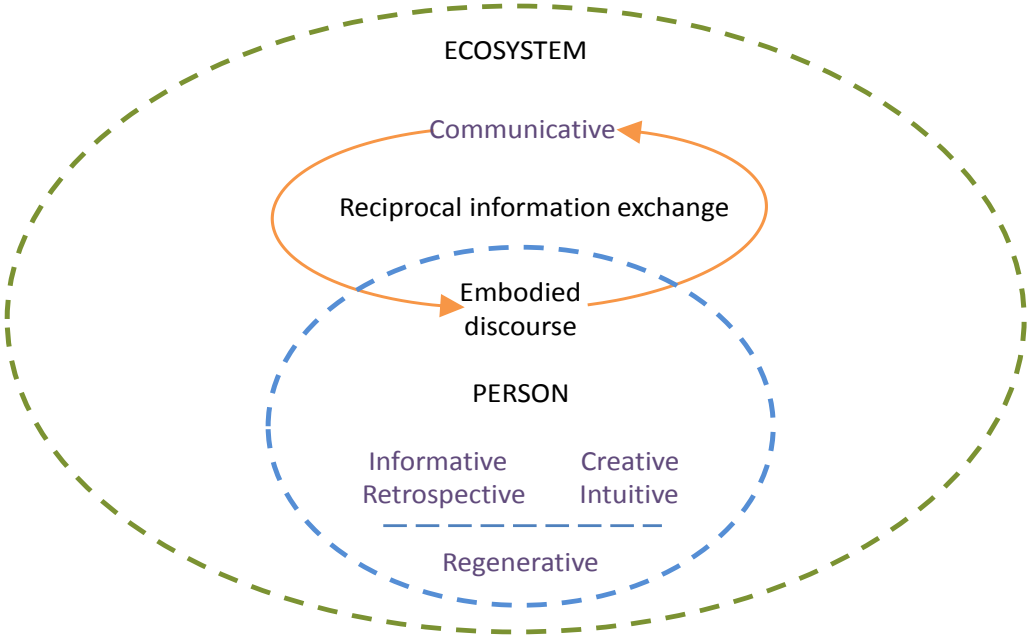

Figure 11:2: Person-ecosystem information exchange and the generation of cultural services

There are different aspects to this conjecture which require further clarification before continuing. Descriptions of interpretative cultural service repertoires are provided immediately below. The reference to 'processes of reciprocal information exchange' is intended to signify all multi-sensory information which results from the interplay of human activity and its effects on objects in the external environment. The relationship of this external environment to the concept of an 'ecosystem' is regarded to be associated with how we conceptually bound 'systems'; this is discussed in greater detail in Section 11.3.2. The notion of embodied discourse is used to reference internalised frameworks of understanding which structure our thoughts and

actions, and which can be considered, "…a matter of social convention, linguistic rules, neuropsychological functions and so on" (Pickering and Barton, 1995). These embodied discourses have been observed to shape the aforementioned processes of reciprocal information exchange as shown in Chapter 1.

Cognitive repertoires

Findings from the visitor study showed that individuals described cognitive experiences which related to knowledge of themselves and of different aspects of the site (Section.6.3.1). These related to interoceptor, proprioceptor and exteroceptor sensations associated with certain site-based activities (Section 6.2.3) which brought individuals into contact with the land surface, land cover, wildlife and various manmade artefacts (6.2.1). In the key informant study, constructions of the wood as a 'demonstrator of change', and a 'changed place' (Sections 10.1.3, 10.2.3) revealed that the cognitive aspects of cultural services was used to construct individuals' observations of change ('gather evidence') in their surroundings (Section 10.5.1), showing there is a connection between this and the retrospective repertoire (below). Cognitive repertoires were also identified in site based documents, such as those which constructed SSSI designation (Section 7.2.3) and ecological value (Section 9.1.1). In the literature, forests were depicted as places which can provide new knowledge and educational opportunities (Section 5.1.4). The cognitive repertoire of cultural services is hence that associated with multi-sensory stimulation which results from activities that facilitate reciprocal information exchange with ecosystems.

Retrospective repertoires

The retrospective repertoire of cultural services emerged through descriptions of how site visits triggered memories of other places, and encouraged people to reminisce on aspects of their lives (6.3.2). This was confirmed through constructions of the wood as a 'changed place' and a 'memory of childhood' (10.5.4) which highlighted how the ability to *remember* makes people living vestibules of historic knowledge. Memories were depicted as being prompted by features such as a specific type of land cover, the presence of children at the site, or engagement in activities which had childhood associations (such as splashing in puddles). Furthermore, the density of tree cover and under-populated nature of the site was presented as inspiring a feeling of solitude which was associated with self-reflection (6.3.2). Ecosystems were found to embody history, since past geomorphic, ecological and social processes were embedded in current landforms (Section 7.1). Individuals combined life experience and learned discourse to construct the history of the site and past inhabitants (Section 6.3.2, 10.1.5 and 10.4.2) in a way which contextualised their own interests. The retrospective

repertoire of cultural services is hence that associated with the recollection of past events triggered by reciprocal information exchange with ecosystems.

Intuitive repertoires

Visitors to the study site described being in flow, in touch with nature, and at one with themselves. These feelings were related to different activities which induced (self-reported) interoceptor responses e.g. increased adrenalin, or the inducement of meditative-type states (Section 6.3.3). Further reference to the atmosphere, the feel, and the sense of the site indicated experiences on the cusp of conscious awareness which were not related to rational thought processes (Section 6.2.3). The intuitive repertoire of cultural services was thus understood as the construction of mysterious, unknown and subliminal aspects of place-interpretation, revealed through symbolic imagery and local folklore (Section 6.4). Literature also presented ecosystems as locations which could promote feelings of union and absorption with nature, and which were thus considered to be sacred places (Section 5.1.3). Constructions of the wood as 'spiritual affinity', and as a 'spiritual meeting place' (Sections 10.5.2, 10.5.4) utilised multiple discourses including folk (anthropomorphism, fairy tales, pseudo-science) and religious (bible-based, pagan, eastern) discourses, and were characterised by a merging of sensory experience (synaesthesia). The intuitive repertoire of cultural services is thus understood to be the result of indecipherable reciprocal information exchange with ecosystems which is beneath the surface of conscious awareness and which is characterised by a blurring of embodied discourses.

Creative repertoires

In the visitor study, the creative repertoire of cultural services was associated with spontaneity and exploration; as individuals described a desire to discover new places and have new experiences (Section 6.3.2). Actions upon the environment (such as the building of landforms and tracks) revealed creative repertoires of design, and desires to initiate new sensations. In the key informant study, constructions of the wood as a 'negotiated place' and as an 'exodus of the mind' revealed an association between activities in the study site and the idea of obtaining freedom from the constraints of social systems (10.5.5). Depictions of the site as a place which supported marginalised groups right to reclaim the land (Section 7.1.2), to squat (8.1), and to protest (10.4.4) were presented alongside social mechanisms which challenged the status quo in order to protect public rights of access (10.2.4). The creative repertoire was observed to be connected to resource regimes which provide open (largely unregulated) access (Section 8.5), extensive path networks which may support exploration (Section 6.2.1), and opportunities for diverse sensory inputs linked to bedrock and habitat diversity

(Sections 6.2.1, 7.3, and 10.1.2). Based on this, the creative repertoire of cultural services is observed to relate to new experiences which are associated with the freedom to regulate reciprocal information exchanges with ecosystems.

Communicative repertoires

Communicative repertoires emerged through the visitor study, such as depictions of talking and greeting other visitors, using activity specific language, displaying socially responsible behaviour, and having (verbal) conflicts with other users (Section 6.3.5). In the key informant study, individuals' descriptions of their environment were found to reflect individual interpretative 'socio-cultural' contexts, and a host of embodied discourses (Section 10.6). The experiences of these individuals were transferred to other members of the community through varied social practices (Section 10.6). Cultural services were found to be communicated through particular discursive resources, and this was fundamental to social action such as designation and land management (Section 9.6). As observed in Section 10.5.6, communicative repertoires infiltrated *all* cultural service repertoires; subsequently this is considered to be a meta-theme which constructs all other interpretative repertoires. The communicative repertoire of cultural services is thus contended to be that which relates to reciprocal information exchange with humans as a component of ecosystems, i.e. discourse.

Regenerative repertoires

Individuals described aspects of cultural services which were psychologically, physically and emotionally regenerative. Constructions of relaxation, and getting away from it all (Section 6.3.6) were related to isolation, peacefulness and quiet at the site (6.2.1). Members of all activity groups spoke of improvements to their overall fitness resulting from physical movement (Section 6.3.6),and related this to exertion caused by the undulating topography (6.2.1) and path network (6.2.2). Visitors described obtaining pleasure from fun activities (Section 6.3.4), ceasing to worry due to their absorption in the surroundings (Section 6.3.6), and enjoying the aesthetic beauty of the landscape (6.2.1); but also negative emotions and physical injuries related to accidents and problematic social relations (Section 6.3.6). A construction of the wood as 'real woodland' provided a detailed construction of feelings of peace, appreciation, relief and emotional release associated with the site (10.1.2). The priority given to regenerative repertoires in social practices was shown through constructions of the wood as 'a place for people to enjoy', and 'a perfect place for a party' (Sections 10.3.3, 10.4.3), and in local government documents (Sections 7.2.1, 8.2). The regenerative repertoire also emerged through literary depictions of modern lifestyles and the increasing need to improve psychological and physical health (Section 4.1.2), and

theory on restoration, wellbeing and therapeutic health (Sections 5.1.1, 4.1.3, 5.1.2). The regenerative repertoires of cultural services are hence observed to those which relate to the effects of reciprocal ecosystem information exchange activities on psychological and physical health.

11.3.2 Hypothesis for the process of cultural services generation

This section of the thesis puts forward a hypothesis for how cultural services are generated from the basic position which posits that cultural services are the result of a process of reciprocal information exchange between humans and external environments, how "…ecological and human processes shape the landscape, and vice versa, how human processes are influenced by landscape pattern" (Brown and Reed, 2012: 80).

Where do cultural services come from?

Ecosystems are commonly advised to be the source of cultural services (MA, 2005). This premise raises a question over how we define ecosystems, since it is observed that how we see ecosystems depends on our perspective (Plate 11:1). The Millennium Ecosystem Assessment defines an ecosystem to be, "…a dynamic complex of plant, animal, and microorganism communities and the non-living environment, interacting as a functional unit" (Alcamo, 2003: 51). This document advises that whilst ecosystem location and size are important these factors are of secondary concern, since the main identifying feature of an ecological system is that it is a *system*, with boundaries defined as "…the place where a number of discontinuities coincide"(Alcamo, 2003: 49). This is problematic to the theorisation of cultural services since systems are constructed entities, which are "…dependent on a person's relationship and, hence, perspective… the 'system' depends on where individuals with their particular viewpoint draw their boundary" (Oreszczyn, 2000: 110).

Plate 11:1: Tree canopy as seen from below, Bow Brickhill Heath

Eco*systems* are, likewise, purposefully bounded constructions, measured by ecological indicators which can "…never become completely disassociated from their context of origin and continue to reflect the values and preferences of that context"(Turnhout, 2009: 411). A further problem then arises from the position that humans are an "…integral part of ecosystems" (Alcamo, 2003: 49). Considering human settlements as parts of (or entire) ecosystems suggests the need to identify 'discontinuities' which would take account of peri-urban development, transport systems and globalised markets. Following the perspective that ecosystems are purposefully constructed entities, it is observed that processes of characterising ecosystems are in themselves cultural services. Thus it is proposed that whilst ecosystem services may be underpinned by *biodiversity*, applications of ecosystem services approaches are underpinned by *cultural services*. Following the position that humans are integral to ecosystems, this thesis recommends the reintroduction of the *information function* concept, which is presented to typify processes of reciprocal information exchange between humans and *any* environment external to humans, including inner city environments. This shifts the focus of our attention to the *types* of information exchange that different environments support.

What is transferred in the process of cultural services generation?

Cultural services arise from the reciprocal exchange of information between humans and the environment external to humans. As encapsulated by the aforementioned *cognitive* repertoires, a portion of this information is multi-sensory stimulation (from people-ecosystem interactions) and of which we are consciously aware. Since a full discussion on consciousness, salience and sensory perception is beyond the scope of this thesis, being 'consciously aware' is taken to refer to the "…normal mental condition of the waking state of humans, characterised by the experience of perceptions, thoughts, feelings, awareness of the external world, and… self-awareness" (Colman, 2006: 164). In addition to sights and sounds, the environment studied in this research (Aspley Woods and Heaths) was reported to provide particular olfactory (e.g. fresh air, pine scents), cutaneous (e.g. the feel of the soil, of bark) and proprioceptor (e.g. adaption to various topographic features) sensations which were considerably different from those provided by urban environments.

The many references to *physical feeling* (especially sensations unique to activities which were linked to the environment studied, illustrated by Plate 11:2) showed this to be a particularly important reference point in the reconstruction of cultural services-type experiences.

Plate 11:2: Dirt jumper in free fall, Old Wavendon Heath

Activity is understood to be key to receiving information functions from external environments, as it is recognised that, "…landscapes happen through the continual and motional entwining of inhabitants and the surroundings…the way the landscape materialises happens through the way the (walking) body is located… the location includes not only the actual physical movement, but also feelings, emotions, intentions, together with the 'noise of the everyday' provided by the texture of the surroundings as experienced by the (walking) body" (Lund, 2012: 236). *Feeling* the environment is conjectured to be a means of information exchange with its origins in humans evolutionary development, since "…the tactile is the primal sense" (Bingley, 2003: 334). The acceptance (by certain individuals) of activity-related injury shows pain may also be a form of valuable information, since"…pain not only helps build confidence that something 'real' is happening, but also leads to an inward movement that cuts through preoccupations leading to…the discovery of 'self'" (Kyle, 2011: 391).

In contrast, it is argued that humans are not aware of the full extent of reciprocal information exchange with external environments, since some of this registers beneath the surface of conscious awareness. As encapsulated by the *intuitive* repertoires, there are conjectured to be unconscious forms of multi-sensory information exchange which result from human activity in ecosystems, but which are indecipherable by means of the normal (waking) thought processes. This is important as unconscious influences can effect human behaviour, given that "…stimuli of which people are not consciously aware can influence conscious judgments" (Bargh and Pietromonaco, 1982: 437). Whilst this study has not supported a full exploration of the intuitive aspects of cultural services, its emergence in visitor discourses suggest it to be important and worthy of further specialist study. To conclude, it is maintained that in the process of cultural services generation, information is transferred between individuals and the environment external to humans. The reception of cognitive and intuitive sensory information in processes of cultural services generation is observed to be related to the concept of a reference function, published under the term ecosystem information functions (de Groot *et* al, 2002).

Why is the information exchange considered to be 'reciprocal'?

Information does not flow unmediated in one direction from the environment external to humans to individuals, but is related to (and dependent on) human *action*. Being in a particular location, looking in a certain direction, or interacting via selected forms of activity all effect information received, and as such, information exchange processes are understood to be reciprocal. Moreover, this thesis has found that people-ecosystem interactions and the construction of interpreted information is shaped by interpretative contexts, since "…particular places and the elements that constitute and

occupy them are interpreted through different narratives by different subjects" (Sumares and Fidelis, 2011: 53). This perspective is embodied by the UK NEA version of cultural services, which posits that "… how people, as members of different social groups, communicate their feelings, experiences and shared knowledge about the natural world is a vital source of evidence for understanding the cultural significance of nature" (Church *et al*, 2011: 640).

It is thus important to note that physical and social laws and norms *structure* individual activities, and thus impact upon reciprocal information exchange. This presents a conundrum however, since indicates that whilst information functions both generate and are shaped by cultural services. This suggests that it is best to think of ecosystem information functions and cultural services as a cyclic rather than linear process. The notion that humans act and so receive information from environments raises the possibility that the external environment also receives information from us, a perspective observed to be associated with Gaia theory (Margulis and Lovelock, 1989). Whilst the approach taken for this study has not supported an exploration of the relevance of Gaia theory for cultural services, this an area of potential future (albeit controversial) research, since it may transpire that cultural services are, in effect, another means by which Earth systems (which include human societies) self-regulate.

This interdependence is recognised by the UK NEA (Church *et* al, 2011), which recommends that humans are an inseparable component of the world's ecosystems, and all ecosystem services are influenced by human actions. Fuentes (2010) uses the term 'natureculture' to refer to the interweaving of 'mutual ecologies', and reminds us that, "…understanding the interactions of organisms within mutual ecologies- how they co-produce and co-construct each other's niches in behavioural, ecological and physiological sense can help social scientists describe this moment in history, when humans have become major agents of environmental changes" (Fuentes, 2010: 601)

How are cultural services transmitted between humans?

Cultural services are transmitted between humans via various forms of communicative practice. These practices are the means by which a primary ecosystem information function (held by individuals) is translated into a collective cultural services phenomena. Since humans are integral to ecosystems, inter-human communication is maintained to be a specific form of reciprocal information exchange with ecosystems (as external environments), as encapsulated by the *communicative* repertoire. The constructivist viewpoint taken by this thesis posits that communication is a practice which constructs reality, since speech and texts "…do not merely *reflect* or *mirror* objects, events and categories pre-existing in the social and natural world. Rather

they actively *construct* a version of those things. They do not just describe things, they *do* things. And being active, they have social and political implications" (Potter and Wetherell, 1987: 6). Communication is hence argued to be a vital component of cultural services generation, and one which has the closest correspondence to the name attributed to this ecosystem service as 'cultural'. It is argued that the transmission of cultural services information between humans is fundamentally related to *discursive practices*, since "…in all theories of culture, *discourse*- as a potential resource and activity- is a primary, primordial force" (Keating and Duranti, 2009: 334). This perspective is hinted at through the UK NEA cultural services chapter (Church *et al*, 2011), which, whilst not fully embracing a discursive position, does nonetheless draw on corpus linguistic analysis to recognise cultural services as discourse-related.

Cultural services are understood to be synonymous with discourse understood in its broadest sense, i.e. "...to cover all forms of spoken interaction, formal and informal, and written texts of all kinds" (Potter and Wetherell, 1987: 7). This includes the concept of *discourse processing*, i.e. how the mind comprehends or produces multiple levels of discourse (Graesser and Millis, 2011: 127). Current perspectives from the cognitive and brain sciences show that "…we think in terms of typically unconscious structures called 'frames'… structures (which) are physically realised in neural circuits in the brain" (Lakoff, 2011: 71-72). Frame systems or discourse are held to be the foundation of social behaviour as a type of semiotic 'code'; the "…the tacit rules and constraints which underlie the production and interpretation of meaning" (Chandler, 2007: 148). It is argued by this thesis that discourse (as a constructive activity) shapes our interrelations with external environments, and eventually becomes embodied *by* those environments. Discourse influences what we think and how we feel about our surroundings; the rules, norms and laws which govern behaviour and guide human activity; and the social practices which impact *upon* and thus become embedded *in* ecosystems. It is the propensity of environments to embody human discourse which is reckoned to be most crucial in defining what is valuable about cultural services which result from reciprocal information exchange with ecosystems.

What is different about the cultural services of rural and urban environments?

Ecosystems with the highest levels of human activity (i.e. urban areas) are observed to be places dominated by discourse. Social practices and institutions (which are arguably concentrated in urban zones) represent sources of discourse, such as the effects of science-policy models (Zoss and Börner, 2012) or mass media which, "… serves as both reservoirs and reference points for the circulation of words, phrases, and discourse styles in popular culture" (Spitulnik, 2008: 161). Political discourse is

also observed to be embodied in the architectural design of settlements themselves. Forming a part of the formulation of city designs from the eighteenth century on, whence "…every discussion of politics as the art of the government of men necessarily included a chapter or a series of chapters on urbanism" (Foucault, 1982: 350), the development of politicised cities, "… with the problems that they raised, and the particular forms that they took" saw urban design which "… served as the model for the governmental rationality that was to apply to the whole of the territory" (Foucault, 1982: 351).

Modern architectural design methodologies still continue to embrace, "…narrative, myth-making and collaged semiotics", as may for example, "…consist of looking at an existing (building), rereading it in terms of its embedded symbolic meaning and redesigning it in the light of contemporary views… or working within cities… which have terrible histories of persecution and truncation, to create zones where history is not denied (but is) instead held in a culturally symbiotic yet new regenerative alignment" (Spiller, 2010: 128-129). Contemporary public spaces which represent a 'natural arena of citizenship' continue to expose individuals and groups to political discourses through "…socio-physical settings where public life occurs on the basis of open visibility, scrutiny, and concern" (Di Masso, 2012: 124). This exposure is arguably heightened by highly structured, 'panoptic' environments (Foucault, 1973) which support the supervision of inhabitants by state and profit-making organisations, activities which are observed to pose a "…growing threat to privacy" (Etzioni, 2012: 57).

In contrast, it is argued that natural and semi-natural environments are less dominated by discourse. In these environments, the semiotic codes (or behaviour cues) are largely non-humanised, lessening the need for social 'performance' (Goffman, 1990), whilst a reduced human population and lack of infrastructure mean a notable absence of the usual "…procedural systems of related conventions which operate in certain domains" (Chandler, 2007: 148). This premise is encapsulated by the *creative* cultural service repertoire, regarding the freedom to regulate reciprocal information exchanges with external environments and so obtain new experiences.

Why is the cultural services provision of non-urbanised environments of particular value to wellbeing?

The propensity of non-urbanised environments to contain fewer social discourses, to have a reduced human population, and to be an unregulated (or less regulated) space make it of particular value to wellbeing in various forms. Whilst there is no consensus on the definition of human wellbeing, views of this as a process of adjustment,

adaptation, and sense-making (Haworth and Hart, 2007; Alcamo, 2003; 6, 2007) and as something associated with freedom and choice (MA, 2005) are particularly poignant to this argument. Natural environments are argued to be locations which are conducive to processes of *adjustment and adaptation* since the reduced human population, lack of surveillance, and (in woods) sense of concealment enable "…a state of relative social disengagement" which reduces the need for 'impression management' (Long and Averill, 2003: 38). This is proposed to enable a shift in awareness to 'self-focus', whereby people reflect on internal perceptual events and gain an "…enhanced awareness of one's present or past physical behaviour" (Carver, 1979: 1255). Self-focus enables individuals to obtain clarity on their personal circumstances, and identify ways to adjust and adapt behaviour (self-regulate) in order to improve their situation (McCullough and Willoughby, 2009). Similarly, natural environments are proposed to offer wellbeing related to *freedom and choice*, as are not imbued with the usual social codes and panoptic structures which encourage social conformity, and which thus allow a "…loosening—deconstruction and subsequent reconstruction—of cognitive structures" (Long and Averill, 2003: 25). This is associated with wellbeing, as allows people to play, and be creative; entering into a "…fluid, dynamic flow out of which can emerge ideas, resolutions, relaxation and new ways of being in the world", termed the 'unintegration of self' (Bingley, 2003: 331).

Natural environments provide wellbeing through *sense-making,* since allow for the acquisition of sensory information with which to 'ground' social discourses. This 'experiential realism' is important for human communities, as is a type of "…phenomenological bedrock driven by perception and physiology that provides an interpretative anchor for the words we use, and (which) enables us to understand each other" (Edwards, 1997: 256). Natural and semi-natural ecosystems are rich in 'non-human' information- that is, stimuli of which the source is not directly anthropological, coming instead from diverse non-human biota and abiota. As such, they provide opportunities for non-communicative forms of reciprocal information exchange, and thus represent an abundant source of accessible, direct evidence to individuals which is free from translation by other humans. Furthermore, the attributes of environments offer a multitude of *physical* sensations (e.g. tactile, proprioceptor and interoceptor stimulation) which mean that activities and bodily experiences can "…offer a basis for a set of images, metaphors, and other devices by which things are described" (Edwards, 1997: 248).. This is argued to enable the critique, clarification and alteration of learned (psychologically situated) discourse, as "…through particular interactions in particular spaces, language and cultural forms are made relevant" (Keating and Duranti, 2009: 337). These activities are proposed to enable processes of individuation (Jung, 1958) and self-actualisation (Maslow, 1954), thereby

strengthening people's sense of self and encouraging independent thought. This finding is similar to one presented in the UK NEA chapter on 'health values', regarding the effects of natural engagement as a 'catalyst for change' (UK NEA, 2011: 1165).

However, it is noted that land in Britain is not entirely devoid of discourse, since "…the UK's existing ecosystems are the product of continuous interaction between people and their environment over millennia" (UK NEA b, 2011: 7). As shown by this thesis, land *embodies* discourse, since it reflects the impacts of historic social practices. It contains discourses which reflect the objectives of land owners, land managers, funding bodies and stakeholders. Restored land reflects ecological discourses, and access infrastructure may reflect political discourses. Landscape perceived as 'relaxing' may contains a host of covert discourses of conflict, revealed by references to war, inter-user conflict, public rights of way battles and management tensions. The concept of wilderness can be paradoxical nature: 'hell-like', devoid of culture, dangerous, alienating and uncontrolled; or 'paradise-like', ecologically rich, cherished, protected, and peaceful (Arts *et al*, 2011). Recognitions of these competing images in restoration plans is beneficial since, "…a one-sided orientation on paradise-like aspects will miss out on the potential for challenge and the 'dark' appeal of wilderness. On the other hand, an approach that creates a fully autonomous wilderness which could be typified as hell-like, may not be supported by a wider public" (Arts *et al*, 2011: 253).

As such, whilst experts 'literate in landscape' are trained to read various land-embodied discourses, individuals interacting with semi-natural environments may be subject to the influence of multiple discourses without necessarily being aware of this. As realised by the UK National Ecosystem Assessment, "…in the expert discourse of the UK NEA, these are regulating, supporting and provisioning services. In public discourse… they are simply 'the natural environment' and 'nature' (Church *et al*, 2011: 646). Given that the ability to disengage from social discourse is here argued to assist individuation (Jung, 1958) or self-actualisation (Maslow, 1954) so encouraging *wellbeing*, it could be argued that education which allows people to 'read land' (Spirn, 1998) will provide greater opportunities for individuation/ self-actualisation, as allows the hidden discourses of external environments to come into conscious awareness.

11.3.3 Why are eco-frames important?

The terms or 'eco-frames' used to describe different aspects of nature are integral to cultural services. The reasoning behind is explained perfectly by the cognitive linguist George Lakoff, who gives us this insight into the relevance of frames to global problems such as climate change:

"One of the major results in the cognitive and brain sciences is that we think in terms of typically unconscious structures called 'frames'… structures (which) are physically realised in neural circuits in the brain. All of our knowledge makes use of frames, and every word is defined through the frames it neutrally activates. All thinking and talking involves 'framing'. And since frames come in systems, a single word typically activates not only its defining frame, but also much of the system its defining frame is in….facts must make sense in terms of their system of frames, or they will be ignored. The facts, to be communicated, must be framed properly. Furthermore, to understand something complex, a person must have a system of frames in places that can make sense of the facts. In the case of global warming, all too many people do not have such a system of frames in the conceptual systems in their brains. Such frame systems have to be built up over a period of time. This has not been done." (Lakoff, 2011: 71-73).

11.4 What are ecosystem cultural services?

This thesis presents a case for ecosystem cultural services to be defined as the ways that humans use discourse to construct and communicate perceptions of nature. This is a process based perspective, which situates this service in the realm of the psycho-social. Cultural services are based upon sets of 'interpretative repertoires', i.e. "…recurrently used systems of terms used for characterising and evaluating actions, events and other phenomena" (Potter and Wetherell, 1978: 149). Results from this study (i.e. from primary data, and the analysis of academic constructions of cultural services-see Figure 11:1) indicate that cultural services are currently based upon a series of cognitive, retrospective, intuitive, creative, communicative and regenerative interpretative repertoires. These repertoires operate at various scales, and contain multidisciplinary contested and evolving discourses. Discourses are drawn on by individuals when they describe their experiences of nature, and in documents which attempt to reconstruct nature using text and graphics.

Cultural services are directly related to information functions, defined as 'processes of reciprocal information exchange with environments external to humans'. External environments provide a source of sensory stimuli with which people can obtain their own evidence about the world, so grounding cultural services in empirical information. Information is shaped by the *activities* people are involved in; behaviours which are based upon the discourses or conceptual schema people have for interacting with the world. These behaviours are thus linked to interpretative repertoires; for example, a

particular scientific repertoire will lead to particular scientific activities, and so generate information to re-inform that scientific repertoire.

The thesis has generated a number of interesting findings which also contribute to our understanding of cultural services, as detailed below.

- Cultural services can include disservices as well as benefits
- Constructions of cultural services perpetuated by study site visitors were associated with *multi-sensory* information functions, rooted in the *physical* body
- Cultural services narratives relating to the study site used memories of other sites as a reference point, and were informed by educational background and childhood experience
- Some cultural service narratives appeared to operate on the cusp of conscious awareness, and typified a blending of religious, scientific and folk discourses
- Whilst at the study site, many visitors engaged in activities which could be described as 'self-development'
- The study site which provided a focus for cultural services exploration was found to be shaped by historic geological, ecological and anthropological forces; and current socio-political and economic circumstances. Thus, cultural services are a contextually related process.
- Access to the study site was provided by various resource regimes (e.g. the access agreement). These resource regimes shaped the type of information function which could be derived from the study site, and typified the dominant socio-political and land management discourses relevant to this time and place.
- Some aspects of cultural services-linked human actions were subsequently tradable on the economic markets, e.g. the sale of photographs, provision of chargeable mountain biking tours, use for horse riding lessons.
- Resource regimes which provided open access to this study site (thus access to information functions) concealed embedded forms of investment. Costs of running the resource regime and dealing with impacts were externalised to the land owner, local charity, and tax payers (via public services)
- Constructions of nature provided by study site-related documents utilised specific discursive resources to achieve specific objectives. This indicates that cultural services are not a neutral phenomenon, as reflect the dominant discourses circulating in society. This highlights the need to integrate marginalised perspectives in order to achieve an inclusive, democratic view of nature and the management of natural resources.

11.5 Summary

This chapter has provided a new perspective on cultural services in order to contribute towards improving the conceptual coherency of cultural services theory. This is believed to be a matter of some importance since, whilst ecosystem services are underpinned by biodiversity, ecosystem services *approaches* are founded upon cultural services. The definition and subcategorisation of this ecosystem service has subsequently been revised.

Cultural services are postulated to be, essentially, an anthropological phenomena which represents the ways that humans use discourse to construct and communicate perceptions of nature. They arise from a continuous, contextually situated multi-stock process of interaction which is fuelled by activity-linked reciprocal information exchanges with external environments. Since humans are viewed as being integral to nature, then the cultural service concept relates to all types of external environment including cities and highly modified ecosystems, and includes relations with other members of the human species.

Cultural services are represented at an individual level by a host of multi-disciplinary 'interpretative repertoires', such as those relating to conscious information (encapsulated by *cognitive* repertoires, and comparable to the information or 'reference' function concept); unconscious information (encapsulated by *intuitive* repertoires), the storing and reformation of experience (*retrospective* and *creative* repertoires), and the effects of information exchange upon psychological and physiological health (the *regenerative* repertoires). However, since reciprocal information exchanges both *generate* and are *shaped by* discourse, this thesis advises that we consider ecosystem information functions and cultural services as cyclic rather than linear processes.

Finally, cultural services (as discourse) are observed to become reified through social practices and institutions which structure interactions with external environments, and which thus cause ecosystems to embody human discourse. As such, experiences associated with *natural* ecosystems are hypothesised to be of higher value to human wellbeing, as these are rich in non-human information, and so allow greater opportunity for the grounding of social discourse, increased self-focus and creativity associated with individuation and self-actualisation.

12 Implications for policy, management and academia

This thesis has produced findings which offer insights for application in land management and policy making contexts, for progressing academic understanding, and for enhancing future cultural services research designs.

12.1 Implications for land management and policy

1. **Wilderness creation and increasing biodiversity**
   Findings from this research suggest that the provision of cultural services-linked wellbeing from natural ecosystems may be related to the absence of human discourse and higher levels of non-human information. If this hypothesis is correct, this would indicate that benefits may be gained through the creation of areas of accessible local wilderness, increasing levels of biodiversity, and from ensuring some green space areas have minimal levels of human influence.
2. **Education and ecological literacy**
   The research suggests that perceptions of the importance/value of nature are partly constrained by the lack of appropriate discourses . This indicates that *education* is important, to increase the stock of relevant nature-related discourses in society, and thus improve the ability of members of the public and non-ecosystem specialists to describe and thus accredit value to ecosystem services.
3. **Advocacy- arts and religious groups**
   The research indicates that the aesthetic and spiritual aspects of cultural services are not only difficult to measure, they are difficult to describe. This suggests there are opportunities for advocacy by special interest groups to explore and develop new ways to express these phenomena.
4. **Coordinated nature and heritage programs**
   This study has shown that local history is highly important to cultural services development, indicating that 'environment' and 'heritage' are intrinsically linked. This raises questions over how relevant NGO and local authority departments communicate with one another to devise coordinated public outreach strategies.
5. **Funding**
   This thesis has highlighted that providing free public access to natural and semi-natural sites generates benefits and financial costs. To ensure widespread access to the benefits associated with cultural services, measures must be in place to ensure adequate funding is available for the management of such sites.
6. **Tree density and solitude**

The trade-offs between open access to green space and overuse are particularly pertinent in areas of high urban density and growth, given people's need for solitude. Areas containing densely planted trees are one means of providing privacy even in highly populated areas.

7. **Balancing freedom with health and safety**
   Land owners and local authorities face difficult decisions balancing public health and safety responsibilities with opportunities for freedom and creativity in natural and semi-natural areas. This is an important area for political discussion.

12.2 Academic implications

1. **Functions *and* services**
   This study has shown it is conceptually useful to demarcate and study cultural services (as discourse) separately from ecosystem information functions (as reciprocal information exchange), as this highlights different aspects of the individual and social processes involved.
2. **Cultural services and biodiversity**
   The research has hypothesised that natural ecosystems offer higher levels of wellbeing because of their provision of 'non-human information'. Further research might explore how 'non-human information' is related to concepts such as 'biodiversity'.
3. **Cultural services and socio-cultural groups**
   This thesis has shown the importance of discourse and socio-cultural contexts on cultural services formation. It would be useful to investigate how discourses prevalent in specific demographic groups (e.g. gender, ethnicity, class, religion, age, education) influence interactions with nature. This would enable an exploration of opportunities for improving cultural services distribution within different groups.
4. **Ecosystem services approaches and democracy**
   This thesis maintains that ecosystem services approaches are founded upon cultural services, and so reflect particular discursive perspectives. It would be useful for research to look critically at how constructions of the natural world shapes social practices, and whether subsequent institutional processes reflect the broader social spectrum.

12.3 Methodological suggestions for future research

1. **The importance of qualitative research**
   The topic area of cultural services is in development. At this stage of our understanding, it is recommended that most cultural services research will benefit from a substantial qualitative component for the depth and scope this provides.

2. **Accounting for complexity**
   It is recommended that the best opportunities for advancing understanding of cultural services require methods that can accommodate complexity. This will require in depth, spatially aware, contextually situated studies which include both diachronic and synchronic perspectives.
3. **Research methodologies to achieve specific insights**
   Cultural services research could be usefully advanced by mixed method studies in the areas of human geography, environmental psychology and sociology of place
   Discourse and social psychology methods offer opportunities to investigate how cultural services (as discourse) influence information functions (as reciprocal information exchanges) and vice versa.
   Psycho-analytic studies (e.g. using object relations theory) provide opportunities for exploring the unconscious impacts of ecosystem features on information function and cultural services formation.
   Biopsychosocial health methods offer opportunities to explore the regenerative (physical and psychological) effects of ecosystem information functions.
   Clinical psychology methods (such as mindfulness and self-regulation scales) can be used to explore the commensurability of information function-related improvements to psychological health. This is exciting given the status of this discipline in accordance with government health policy.

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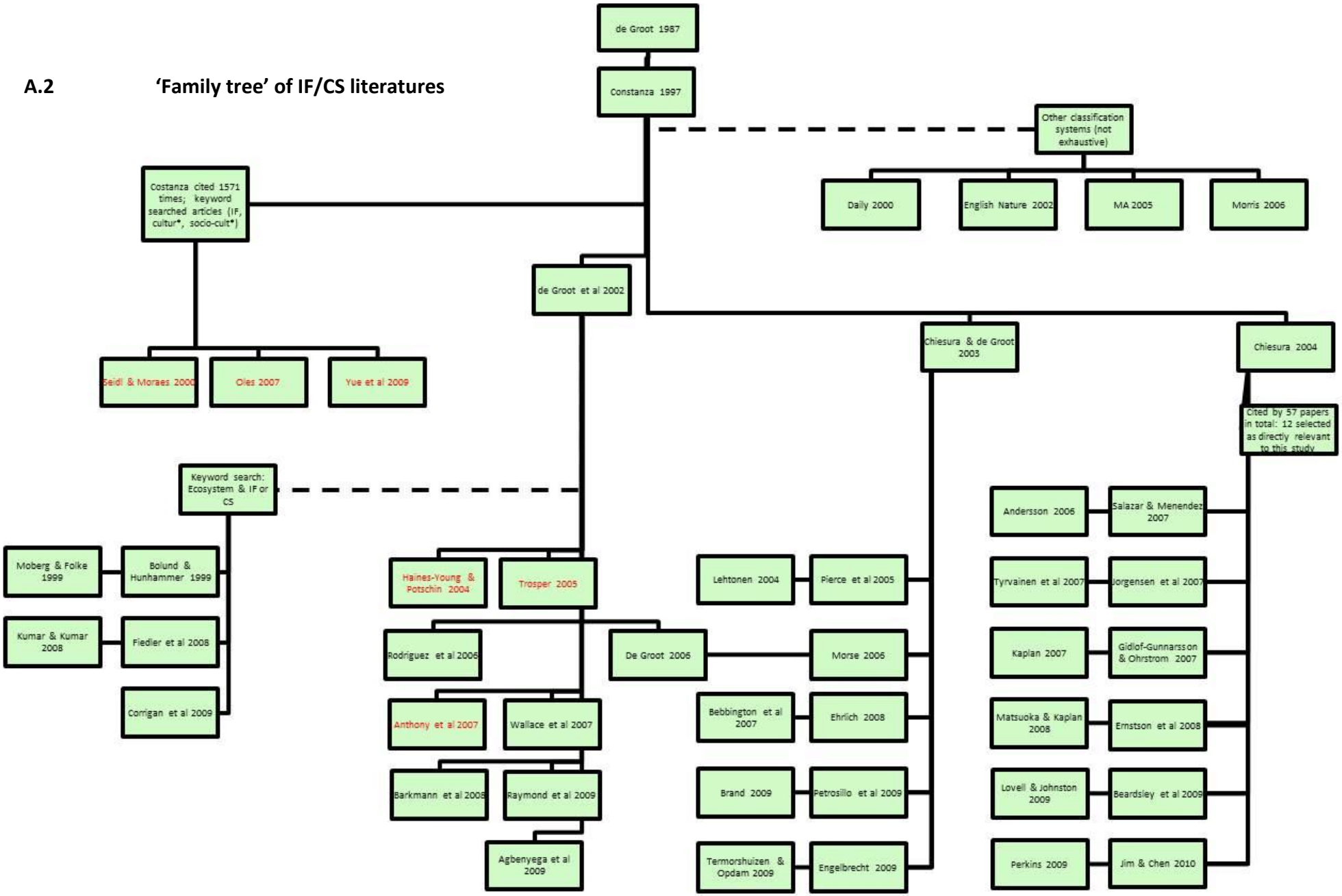
APPENDICES

A.1 Thesis development

The CS as…	Research problem	Questions	Method & approach	Results gained	Questions arising	Chapter
A social construct	CS is a social construct used in academia/ economics & politics	What themes run through the CS construct and what view of reality does this create?	Review & thematic analysis of main CS texts, further review of theme lits & theory	Perceptible themes Wider themes	Explore other available data (secondary and primary). How does this compare with social construct? How might difference affect potential future applications?	4
A phenomena known by other names (inter-disciplinary)	CS is understudied (in this form).	What evidence exists for CS-type phenomena in other disciplines?	Review published study findings/ reports	Phenomena which may be termed CS	Explore how this information manifests in reality.	5
A public good (from private land!)	Can be provided strategically, or arises incidentally	How is it provided? How is it 'consumed'? How is this managed? How is it measured?	Case study Critical realist Desk study Semi-structured interviews (owner, manager & CC)	Access agreement PROW Forestry/ multifunctionality Rangers/ NGO Estate influence	What is this dependent on and how does it features in the market? Is provision secure?	6
A context dependent phenomena	Is intrinsically related to and influenced by wider social & env processes	What influences site (physical) structure? What influences perception of value?		Geo-morphic History Current issues- economic crises, GI needs, gov change	Can geo-morphic and historic processes be captured by valuation? Does value increase according to contextual circumstances? What aspects of provision are at risk through political change?	7
A process	Arises through interaction between people and nature	What types of interaction (i.e. activities)? What features feature in interaction*n? What are the broad features of the experience?	Case study Critical realist Semi-structured (visitor) interviews Observation (principles of Environmental Psychology, coding and	Activities Important-features Effects	What is actually experienced through interaction? Is full experience shown by current social construct? What discursive resources are available to explore/ describe full experience?	8
A place-and	Arises in relation	What arises to create		Sensory info	What thoughts go on inside visitors' heads?	9

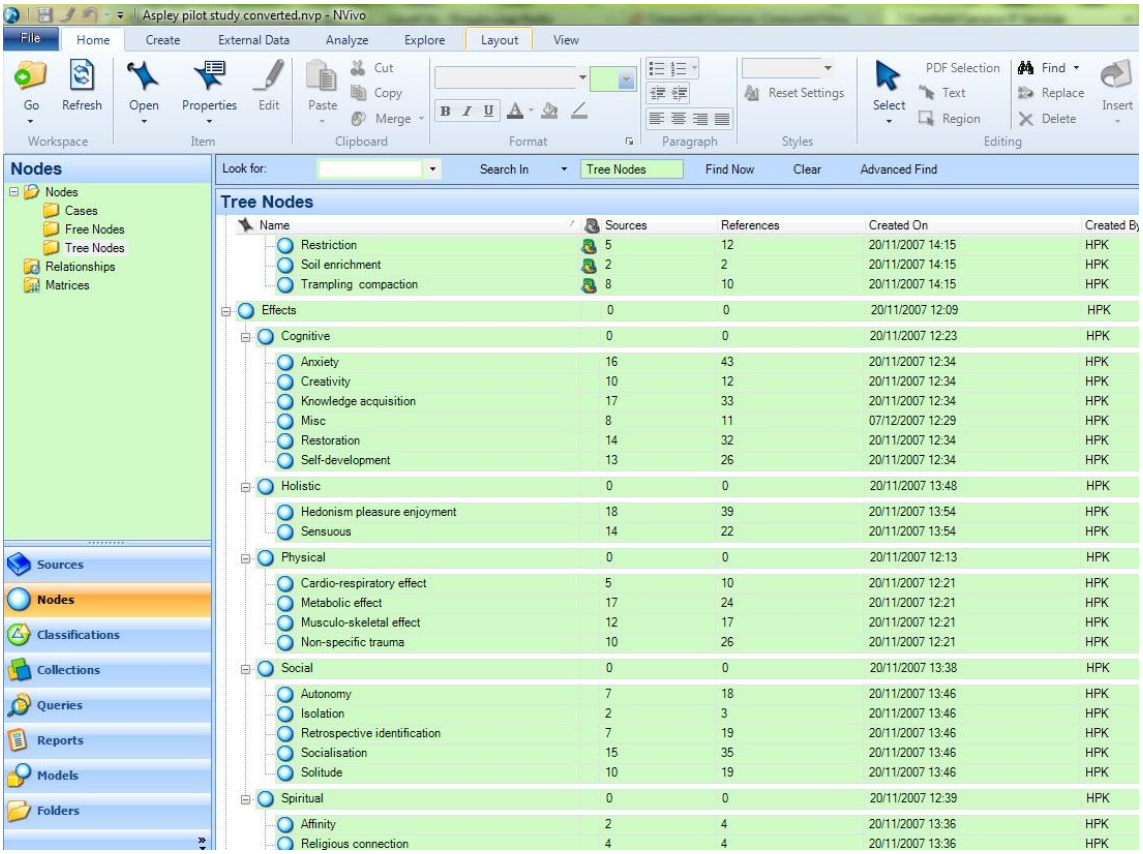
person related phenomena	to ecosystems and past experience	CS? What does it comes from? Is this 'natural'?	clustering)	Cognitive info Background/ past experience Naturalness	Is it self-regulation/ self-development? What is about this settings that allows this?	
A discourse	Relies on discursive resources for translation & thus inclusion in social process	How is it constructed through language? What discourses are drawn upon? What positions and possibilities for action are made available through discourses?	Foucauldian Discourse analysis (radical relativist) Site descriptions/ citations	Expert language Qualitative description Time Presentation of a 'case' Designation & legislation	Are lay-person discourses reflected by social construct? Is recreation a catch-all category (convenient due to market value?) What type of discourses lead to heritage conservation? What voices are missed?	10
An existential experience	Use of the site for self-development practices	Is behaviour self-monitoring? Identify-building? Why in the wood?	IPA (contextual constructivist) Semi-structured (key informant) interview		Does this experiential phenomena fit the CS construct? Does it fit other discursive resources (clinical psych?)	11
An evolving social construct	New construction of CS	New view as per thesis	Consolidation of results			12
A policy tool	Does designation & legislation etc. Recognise, protect, and enhance CS?	What policy includes? What it doesn't. Alternative policy/ mechanisms	Compare CS (thesis version) to CS as social construct. Identify areas of mismatch.		Can thesis provide policy recommendations or is this future project? How to individual experiences manifest at group level? How do institutions provide CS?	13
A subject of valuation	Do valuation techniques accurate translate CS?	What valuation measures. What it doesn't. Alternative methods/ mechanisms	Compare full CS (thesis version) to current subjects of valuations methods		Can thesis provide recommendations as to alternative valuation, or things that need covering? How much of CS is in the 'lime' economy? Public cultural goods.	
A land management guide	Guidelines for full CS creation	What needs to be in a site to get maximum CS?	Conclusion/ recommendations		Can thesis provide guidelines or is this future project?	

A.2 'Family tree' of IF/CS literatures



A.3 Examples of NVivo coding

Node tree



Example of coding: coded under node 'creativity'

<Internals\\Pilot study data\\Visitor Interviews\\2 young males maintaining ramps> - § 2 references coded [6.29% Coverage]

Reference 1 - 5.12% Coverage

- You get to make 'em (ramps) how you want 'em
- You get to change the ramps, adapt them

<Internals\\Pilot study data\\Visitor Interviews\\3 men biked from work> - § 1 reference coded [1.36% Coverage]

Reference 1 - 1.36% Coverage

- We take different routes in/ from work
- Take a different route each time

<Internals\\Pilot study data\\Visitor Interviews\\Car dealership 4x4 photo lads> - § 1 reference coded [0.57% Coverage]

Reference 1 - 0.57% Coverage

- Use it for scenery for photos

<Internals\\Pilot study data\\Visitor Interviews\\Elderly man walking round fort> - § 1 reference coded [3.35% Coverage]

Reference 1 - 3.35% Coverage

- Drifts, explores
- Depends what feels like at that moment

<Internals\\Pilot study data\\Visitor Interviews\\Father and son from group of 5> - § 2 references coded [1.93% Coverage]

Reference 1 - 0.71% Coverage

- It's better dodging the trees

Reference 2 - 1.22% Coverage

- Like building and designing
- It's a big part of it

<Internals\\Pilot study data\\Visitor Interviews\\H C's parents> - § 1 reference coded [1.25% Coverage]

Reference 1 - 1.25% Coverage

- We change it (the route) alot
- Like changing it

<Internals\\Pilot study data\\Visitor Interviews\\Old couple who saw panther> - § 1 reference coded [0.55% Coverage]

Reference 1 - 0.55% Coverage

- We sometimes explore

A.4 Sample of analysis sheets prepared for site-related documents

Discourse Title	Wavendon Heaths and Aspley Wood CWS
Author	Bedfordshire and Luton Biodiversity Recording and Monitoring Centre
Discursive object	Wavendon Heaths and Aspley Wood
Constructs:	
Time	SSSI notified in 1954, under 1949 act. SSSI notified under 1981 act in 1986. 1990 CWS recognised. 2000 CWS boundary updated. Phase 1 survey in 1990.
Location	Grid reference given. Council (central Bedfordshire). Sections of wood to North-South East and West. Wood is located north-west of Woburn. Is situated on acid soils of the lower greensand. Multiple grid references used to pinpoint habitat and ecological data, e.g. "SP93453450 to SP93703421, the woodland has a mature canopy and a sparse understorey and ground flora; large area of coniferous plantation in Aspley Wood extending from SP93713425 to SP93743506 with an acidic grassland ground flora and occasional scrub"
Shape	Triangular shaped sandpit. Sections of wood said to be in a "reverse-C-shaped area". Strips of broadleaf woodland. Steep West facing bank. Area of mixed plantation very narrow in eastern section
Quantitative	Multiple grid references. Area 254.1 ha. Site includes three ponds. Numbers of adjacent blocks of woodland.
Qualitative/ Expert terms	"The majority of the CWS is under plantation, mostly coniferous, but there are significant areas of semi-natural broadleaved woodland, marshy and acidic grasslands, dense scrub and introduced shrub. A large part of the CWS is a Fullers Earth quarry." "… Ponds containing acid mire fed by an acidic flush; a field of unimproved and semi-improved acid, neutral and marshy grassland; and damp Betula woodland. "… Particularly sensitive acid wetland community." "The woodland has a mature canopy and a sparse understory and ground flora". "… scattered trees and scrub and a dense central line of trees". Unimproved acidic grassland. "Mermaids Pond, a large pond containing open water and an area of swamp vegetation at the northern end with abundant aquatic vegetation, marshy well vegetated margins and fringed by broadleaved woodland to the south but is not heavily shaded;"
	CWS recognised for: Ancient semi-natural broadleaved woodland, Ponds, Lowland Heathland. Main habitats present: UK BAP Priority Ponds, Broadleaved, Mixed and Yew Woodland (Broad Habitat). Other habitat (s): Coniferous plantation, Acid grassland, Scrub, Dwarf shrub heath, Acid mire." "The field at SP930353 within the Wavendon Heath CWS has a similar range of grasses to the above fields, with herbs including is present along the eastern edge of the field."
Tangible	Acidic flush, unimproved and semi-improved acid, neutral and marshy grassland. Wet ditch, rich flora, sensitive acid wetland community, broadleaved woodland, mature canopy, sparse understory, ground flora, coniferous plantation, scrub, swamp vegetation, abundant aquatic vegetation, marshy well vegetated margins, unvegetated pool, open mature canopy, dense sub-canopy, stream, pond, active Fullers Earth quarry, field, species e.g. Lesser Stitchwort, Meadow Buttercup, Common Sorrel, Bird's-Foot Trefoil, Cat's-Ear, Yarrow, Field Woodrush, Lady's Bedstraw, Germander Speedwell.
Intangible	Disused sandpit, public access, not publicly accessible, management work, grazing management, fields cut for hay, active Fullers Earth quarry,
Graphics	Map (1:10,000) with GIS overlay

Discourse Title	Schedule Entry Copy File Reference: AA 60739/1
Author	English Heritage
Discursive object	Danesborough Camp
Constructs:	
Time	Legislation from 1979. Excavations suggest Hill Fort is earlier than second century A.D., probably dating between first century BC and first century A.D. Hillfort generally dates to Brittany in late Bronze age and early Iron Age. Majority used for between 150 to 200 years. Monument included in the schedule in 1933. Scheduling revised in 1993.
Location	The hillfort is 420 m north of The Knoll. In the parish of Wavendon. In the district and county of Milton Keynes. National Monument number 19083. National Grid reference given. Hillfort situated at the northern end of a small steep sided spur. Hillfort measures 210 m north-east to south-west. Defences are strongest around south-east side of hillfort. Hillfort is rare with around 150 recorded nationally, most common in Devon. Other areas where the distribution is relatively dense, Wessex, Sussex, Cotswolds, Chilterns. Examples are also recorded in eastern England, the Welsh Marches, central and southern England.
Shape	Hillfort situated at Northern end of "small steep-sided spur". "The hillfort is oval in shape" . "The defences run roughly around the 150m contour using the natural steepness of the hillslope which has been artificially scarped to further steep and the slope and create an outer ditch, the spoil from which was thrown out Woods to form a parallel outer ramparts."
Quantitative	Hillfort measures 210 m north-east to Southeast by 130 m transversely. Has an internal area of approximately 2.4 ha. Defences run around 150 m contour. Rampart averages 1.5 m high on its lower side and is 1.7 m from its top to the ditch bottom on the upper side
Qualitative	"ASSESSMENT OF IMPORTANCE Slight univallate hill forts are defined as enclosures of various shapes, generally between 1ha and 10 ha in size, situated on or close to Hill tops and defined by a single line of earthworks, the scale of which is relatively small."
Expert terms	Slight univallate hillfort, steep sided spur, parallel outer ramparts, earthworks. "Slight univallate hillfort's have generally been interpreted as Doc enclosures, redistribution centres, places of refuge and permanent settlements." "Despite some disturbance to the interior caused by afforestation, Danesborough Camp survives well and is a good example of its class. Partial excavation of an area of the site demonstrated that archaeological remains will survive relating to the occupation of the hillfort, the economy of its inhabitants and the landscape in which they lived."
Tangible	Settlements, earthworks, rampart, narrow level berm, external ditch, counterscarp bank, entrances,
Intangible	"The site of the monument is shown on the attached map extract outlined in black and highlighted in red. It includes a 10 m boundary around the archaeological features, considered to be essential for the Monument support and preservation."
Graphics	Map (1:10,000) showing Danesborough camp

A.5 Research brief for interview participants 16.08.11

PhD working title: People in nature and the nature in people: A constructivist exploration of ecosystem cultural services

The research you have been asked to take part in is the final stage of my PhD research, which centres on the study of Aspley Woods, Wavendon Heaths, and surrounding woods.

The study uses concepts taken from the Ecosystem Services Approach, which is a framework now used in policymaking decisions. This approach is intended to account for a fuller range of benefits which society receives from natural resources, over and above their function as producers of materials for human consumption.

The 'cultural service' represents the way that nature features in society in the form of education, science, religion, history, art, and recreation. Aspley provides a brilliant study site for research of this kind due to its rich history, varied habitat, and public accessibility.

Given the wide breadth of the 'cultural service' concept, it has been necessary to focus on a thin slice of this phenomena. This phase of research therefore looks at the wood as a place for self-reflection, and the construction of identities. What this means is that I am interested in exploring how the wood features in people's lives, what it 'means' for them, and the importance of hobbies/ livelihoods which are closely linked to the wood. Above all, I am interested in your personal experience, knowledge and perspective.

For this final stage of research I will be speaking to 5 people who are all familiar with Aspley Woods, and who all have a uniquely interesting perspective to offer. During our interview, the topics I would like to talk about include:

The wood; what do you know about them, what experiences have you had there?
Freedom; how the wood might offer different opportunities from the urban world
Memories; past experiences of the wood; how the wood invokes memories of other places
Symbolism; what does the wood 'stand for'? What are its most important features?
Self-development; are there aspects of your relationship with this site which have allowed you to improve yourself physically, emotionally, spiritually or cognitively?

The interview will be free flowing, and will be guided by these themes rather than structured questions. You are encouraged to present items (e.g. pictures, texts) as desired.

I hope that you feel happy to take part in my study, and look forward to talking to you.

A.6 Proposal for Ethics Committee

Submitted 25.08.09

Student:	Helen King
Student number:	078323
Degree sought:	PhD in Natural Resource Management
School:	School of Applied Sciences
Thesis Title:	People in Nature: An exploratory study of cultural services in a semi-natural habitat
Supervisors:	Dr Matthew Cook and Professor Richard Carter

1. Study Context

This study is based on a categorisation of natural resources known as the Ecosystem Services typology (Daily, 2000; de Groot *et al,* 2002; MA, 2005). The typology offers a framework for describing, classifying and valuing ecosystem functions, goods and services for inclusion by socio-political systems.

This study explores the cultural service component of the typology, which embodies phenomena relating to the psychological, social and cultural contributions of ecosystems. Thus it takes a psycho-social perspective, grounded in literatures from environmental psychology, sociology of place/identity, and natural resource management.

2. Details of Thesis

The aim of this work is to clarify and enhance usability of the academic concept known as an ecosystem's 'information function' or 'cultural service' ('IF/CS')

The overall objectives are as follows:

1. To review the current state of IF/CS knowledge
2. To identify evidence of IF/CS in a semi-natural setting
3. To identify contextual variables influencing IF/CS in a semi-natural setting

4. To deliver conceptual improvements to IF/CS theory

There are expected to be two main outputs from the study: a conceptual framework for processes underlying cultural service creation, and findings relating to self-reflection behaviours in a semi-natural environment.

The study is being carried out in phases. This proposal relates to the forthcoming phase of primary data collection scheduled to take place August to November 2009.

3. Proposed Primary Research

This research is intended to fulfil objectives two and three (above), relating to evidence, and identification of contextual variables relating to IF/CS in a semi-natural setting. A review of relevant literatures and potential epistemological approaches indicates a qualitative, phenomenologically orientated methodology is most appropriate for this work. Phenomenological research aims to 'clarify situations lived through by persons in everyday life' (Giorgi and Giorgi, 2008: 26). This approach is interested "in the world as it is experienced by human beings with in particular contexts and at particular times... the *phenomena* that appear in consciousness" (Willig, 2008: 51). As such, the sub-aim for this phase is to 'explore the experience of a semi-natural ecosystem', the design of which is outlined in Box 1.

Research Approach	**Details**
Research design	Flexible, exploratory
Methodological approach	Qualitative phenomenological social psychology
Data collection methods	Recorded semi-structured interviews, observation, photography
Co-joined study site	Wavendon Wood, and Browns Wood (Bucks)
	Aspley Wood, and Wavendon Heaths- Old and New (Beds)
Sample 1	Purposive, non-proportional quota sampling: individuals visiting study site for work and/or recreation. Spontaneous interviews.
Sample 2	Expert sampling; persons involved with site. Interviews arranged in advance.
Analysis	Software-aided (NVivo) phenomenological data analysis

Box 1: Specific details of study design

3.1 Data Collection: Semi-Structured Interviews

Interviews are purposefully being carried out in the study site in order to capture as authentic an experience of the site as possible. The study site is privately owned, and publicly accessed via an access agreement with the local authorities of Bedfordshire and Buckingham Councils. Site worker interviews (Sample 2) will be pre-arranged, and conducted on-site. Potential visitor interviewees (Sample 1) will be approached during their visit study site, and asked if they are willing to participate. Further details of the way this approach will be managed are outlined below.

The qualitative technique which is proposed requires in depth, detailed description of experience. This is most likely to be achieved through a 'natural talk' approach (Silverman, 2006:201). It is fully recognised that this is a specialised approach, and has a number of ethical implications which have been considered and detailed below.

3.2 Piloting and Interview Content

Initially, those interviews which take place will be organised around a list of key themes (see box 2). A natural talk approach favours themes rather than pre-designed questions, to allow interviewees the fullest opportunity to express their experience of those aspects of the study site indicated by the theme list. Additionally, it offers an opportunity for the researcher to frame questions using the interviewees own language style, and gain higher levels of rapport.

The first three or four interviews are to be regarded as a Pilot. Subsequently, should it become apparent that the approach is not yielding data of sufficient quality and breadth, the approach will be modified. In this case a series of open ended questions will be developed, worded using the themes above, in addition to the use of basic prompts and probes (Smith and Osborne, 2008: 61). It is anticipated that whilst the format of questioning will alter, questions will not stray from the topic areas indicated by the theme list.

Interview Themes	
Familiarity	Duration/ frequency of visits, and historic visitation of site
Intention	Purpose of visit and connection to fulfilment of any long term goals
Context	Knowledge about site and/or activity undertaken
Features	Site features relevant to experience (both ecological and manmade)
Uniqueness	Why this place, what is different about coming here?
Care	Towards site, towards other sites, towards nature and the planet

4. Ethical implications of primary research

4.1 Consent and Withdrawal

In accordance with the Statement of Ethical Practice published by the British Sociological Association (2002) it is deemed appropriate in this field work research context to treat the matter of consent as a process rather than a 'one-off' event (paragraph 25). For this reason, a four-stage consent statement has been developed (see Box 3 on next page).

Any person who wishes to decline participation throughout the consent process or during the interview will be thanked for their time. Any person withdrawing after the commencement of the interview process would be debriefed.

4.2 Protection

It is in the interests of both interviewee and researcher that the interview is conducted in a well-mannered and empathetic manner. The need to gain rapport will be balanced with maintenance of a professional attitude. Particular emphasis will be placed on remaining sensitive to the needs of the interviewee, and their psychological comfort will be the main concern throughout and immediately after the interview

It is not expected that any sensitive or personal information will come up during the course of the interview. Should any particular subject appear to illicit a particular strong emotional response, the subject matter will be changed. However, it is expected that the likelihood of this happening is extremely small, given that the

subject matter is recreational experience rather than strongly emotive subjects such as loss, trauma, or family issues etc.

4.3 Deception

Integrity and good communication is integral to this style of research, which aims to obtain as authentic an account of individual experience as is possible. For this reason, encouraging the interviewee to give their truthful perspective, and valuing their opinion is of the highest importance. Any deceptive methods would run contrary to this approach, and would therefore be avoided.7

4.4 Confidentiality

Wav-file numbers relating to recordings will be noted, along with interview location, date, time, and the activity which the interviewee was engaged in prior to consent. Interviewees will, through this form, be allocated a code which will be used to maintain confidentiality in debriefing. Wav- recordings and transcripts will not be accessible by anyone other than the researcher and supervisory team. These will be kept in a safe place, ensuring confidentiality at all times.

Since the identity of site worker interviewees will be known prior to the interview, anonymity will be maintained as best as is possible, however this is difficult to guarantee due to the relationship of the working professional to the study site. It is proposed that interviewees be asked whether they consent to having their job title published in connection to their comments. If this is not something they are in acceptance of, any quotes published in the thesis and/or any journal papers will carry a title such as ‘forestry worker’.

Consent management and communication

Initial contact:

I am a research student from Cranfield University
I am involved in a project exploring the experiences of visitors to this site for my PhD thesis
Would you be interested in talking to me about your experience of this wood/ heath?

Consent 1

For my project, I am really interested in what you know about this place, what you like about it
I'm also interested in how your visit makes you feel mentally and emotionally
I will not need any sensitive or personal details from you but I may ask you some questions about your typical thoughts and feelings while you are in the wood/ heath
You would be completely free to refuse any questions, or stop the conversation at any time
Does that sound ok?

Consent 2

I will need to tape record our conversation
I will not need to ask your name or address
Anything you say will be completely anonymous
Are you ok with that?

Consent 3

I must just let you know that the results from this interview will be used in my thesis
The thesis will be in the public domain through the university library
The results may be published in a scientific journal.
However, anything you tell me can remain anonymous
Is that acceptable?

4.5 Debriefing

Interviewees will be debriefed at the end of the interview, via a short conversation about the aims and aspirations of the research. Interviewees will also be warmly thanked for their involvement. A slip will then be given to the interviewee (see Appendix II) giving contact details of the researcher, encouraging feedback from the interview, and offering access to the research findings. Full individual transcripts will not be offered, however, individual summaries will be made available, as will a summary of overall study findings.

4.6 Observation

An on-going process of observation will take place during visits to the study site. Observation will relate to visitor activities, ecological condition of the habitat, forestry

practices and any other items of interest. Observations will be noted in a note book, the contents of which will be transferred periodically into a word document.

Whilst engaging in observation, attempts will be made to be unobtrusive; not obstructing any on-going activities. Transparency will be maintained through disclosure of research student status if asked, and the display of a student ID card.

Digital photographs will also be taken of habitat/ landscapes, and visitors. Photographs will be stored on an external hard-drive until required for reproduction in thesis.

It is perceived that any ethical implications regarding photography relate only to those involving human subjects. To avoid any potentially difficult situations, photographs of subjects will follow these rules:

- No photographs will be taken of unaccompanied minors (anyone appearing U18 years)
- Consent will be gained for photographs of subjects at a distance of less than 15 m
- Photographs will be taken without consent of subjects at a distance of over 15m unless disapproval is voiced (in which case a photograph may be deleted)
- Photographs will not be modified or altered in any way other than being cropped or scaled up/down.

4.7 Other: Researcher issues

<u>Safety</u>

The researcher has extensive knowledge of the study site which is close to their place of residence. However, for safety reasons, the following rules will be adhered to:

- Data collection will not take place after dusk
- Data collection will always take place on recognised paths
- A staff member will be notified immediately prior to start and end of interviewing

- A staff member will be notified of the interviewing location
- The researcher will not disclose any personal information

Integrity

There will be continual reflexivity throughout the research process on the part of the researcher. This will be documented to create an audit trail, available for examination by the thesis committee and/or examiner(s).

All persons involved in, or coming into contact with the researcher throughout the course of this research will be treated with respect. Details of the university and/or the project will be available to any person that requests these.

References

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Appendix I: Interview data and consent form

No.	Code	Wav file	Date	Time	Location	Observed Activity	Consent
1	SPIII/341						
2	SPIII/342						
3	SPIII/343						

Appendix II: Debriefing slip

Thank you for participating in my research project.

I welcome any feedback you could offer regarding our conversation today. You are also welcome to receive a summary of my research.

If you would like to offer feedback, to receive a summary of our talk, or receive results of the project, please contact me by email: h.p.king@cranfield.ac.uk

or telephone (voicemail): 01234 750111 extension 8585

To maintain anonymity, please quote code **SPIII/341** in your communication

Please note that summaries may take approximately 2 weeks to produce.

Project results will be sent in approximately 6-12 months. Many thanks.

A.7 Protected Species List for Aspley Heath PhD Study Site

PhD study site straddles Bedfordshire and Buckinghamshire, comprising: Bow Brickhill Park, Browns Wood, Wavendon Wood, Bow Brickhill Heath, Old Wavendon Heath, New Wavendon Heath, Aspley Woods, and the restored fuller's earth quarry)

Group	Scientific name	Common name	Last Reported	A*	B*	C*	Notes
Amphibian	Rana temporaria	Common Frog	10/04/1980	3		1,6	
	Triturus cristatus	Great Crested Newt	20/08/1989	2,3	8, 11	1,6	Mermaids pond
Bird	Accipiter nisus	Eurasian Sparrowhawk	05/03/2006			3,5	
	Aix galericulata	Mandarin Duck	22/03/2004		2	3	
	Alauda arvensis	Sky Lark	09/03/2008		1,2, 5,8		
	Anthus pratensis	Meadow Pipit	09/03/2008		2,5	1	
	Anthus trivialis	Tree Pipit	13/05/2003		2,5, 8,1 1	1	
	Buteo buteo	Common Buzzard	09/03/2008		2	3,5	
	Caprimulgus europaeus	Nightjar	1998		5,1 1		High conservatio n concern
	Carduelis cabaret	Lesser Redpoll	29/04/2006		2,5		High conservatio n concern
	Carduelis cannabina	Common Linnet	12/04/2004		1,2, 5	1	High conservatio n concern
	Carduelis flammea	Common Redpoll	21/04/2002			1	
	Carduelis spinus	Eurasian Siskin	05/03/2006			1	
	Cuculus canorus	Common Cuckoo	27/04/2008		2,5, 8,1		High conservatio

					1		n concern
	Cyanistes caeruleus	Blue Tit	24/02/2008			1	
	Emberiza schoeniclus	Reed Bunting	10/05/2003		1,2,5,8	1	High conservation concern
	Falco tinnunculus	Common Kestrel	24/02/2008		2,5	1,3,5	
	Fringilla montifringilla	Brambling	2007				
	Hirundo rustica	Swallow	2005				
	Larus canus	Mew Gull	24/02/2008		5	4	
	Larus fuscus	Lesser Black-backed Gull	24/02/2008		2,5	4	
	Larus glaucoides	Iceland Gull	25/03/2007		5	4	
	Larus ridibundus	Black-headed Gull	24/02/2008		2,5	4	
	Locustella naevia	Common Grasshopper Warbler	01/05/2003		2,5,8		High conservation concern
	Loxia curvirostra	Common Crossbill	07/06/2008		2	1	
	Lymnocryptes minimus	Jack Snipe	24/02/2008		5	3,4	
	Muscicapa striata	Spotted Flycatcher	2005		5,11		High conservation concern
	Oenanthe oenanthe	Northern Wheatear	27/04/2008		5	1	
	Parus major	Great Tit	24/02/2008			1	
	Parus montanus	Willow Tit	1982		5,11		High conservation concern
	Parus palustris	Marsh Tit	2008		5,11		High conservation concern
	Periparus ater	Coal Tit	24/02/2008			1	

	Phoenicurus phoenicurus	Redstart	1982				
	Phylloscopus sibilatrix	Wood Warbler			5,11		High conservation concern
	Phylloscopus trochilus	Willow Warbler	02/06/2004		2,5		
	Picus viridis	Green Woodpecker	24/02/2008		2,5	1	
	Prunella modularis	Dunnock	24/02/2008		2,5	1	
	Pyrrhula pyrrhula	Common Bullfinch	25/10/2007		1,2,5		
	Regulus ignicapilla	Firecrest	2004				
	Regulus regulus	Goldcrest	24/02/2008		2	1	
	Saxicola torquata	Stonechat	09/03/2008		2	1	
	Scolopax rusticola	Eurasian Woodcock	03/06/2006		2,5	3,4	
	Streptopelia turtur	Turtle Dove	1982		5,11		High conservation concern
	Strix aluco	Tawny Owl	18/06/2003			1,5	
	Sylvia undata	Dartford Warbler	28/03/2005	3	5	2	
	Troglodytes troglodytes	Winter Wren	24/02/2008			1	
	Turdus philomelos	Song Thrush	24/02/2008		1,2,5		High conservation concern
	Turdus viscivorus	Mistle Thrush	1982				
	Turdus pilaris	Fieldfare	15/03/2003	3	2,5		High conservation concern
	Turdus torquatus	Ring Ouzel	28/03/2004		5,8,11	1	High conservation concern

Conifer	Pinus sylvestris	Scots Pine	09/06/2004		7		Nationally scarce
Grass & fern	Aira caryophyllea	Silver hair-grass	2006				Scarce in Bucks
	Blechnum spicant	Hard-fern	26/06/2006		4		SSSI
	Osmunda regalis	Royal Fern	1999		4		
	Polystichum setiferum	Soft Shield-fern	06/09/2005		4		Mermaids Pond
Flowering plant	Alchemilla filicaulis subsp. vestita	Alchemilla filicaulis subsp. Vestitax	28/05/2006		4		
	Buxus sempervirens	Box	01/06/2000-30/06/2000		7,10		Nationally rare
	Carex echinata	Star Sedge	26/06/2006		4		SSSI
	Carex rostrata	Bottle Sedge	26/06/2006		4		SSSI
	Cerastium semidecandrum	Little Mouse-ear					Scarce in Bucks
	Colchicum autumnale	Meadow Saffron	17/10/1988		4		
	Cruciata laevipes	Crosswort	01/01/1987-31/12/1990		4		
	Cytisus striatus	Hairy-fruited Broom	28/07/1998		4		
	Epilobium palustre	Marsh Willowherb	26/06/2006		4		SSSI
	Filago minima	Small Cudweed	1998				Scarce in Bucks
	Filago vulgaris	Common Cudweed	26/06/2006		4,10		Nearly Threatened
	Galeopsis speciosa	Large-flowered Hemp-nettle	12/08/1987		4,10		Vulnerable
	Hyacinthoides non-scripta	Bluebell	27/06/2000	3			
	Hydrocotyle vulgaris	Marsh Pennywort	26/06/2006		4		SSSI
	Hypericum	Imperforate St.	26/06/2006		4		

	maculatum subsp. obtusiusculum	John's-Wort					
	Hypericum pulchrum	Slender St John's-wort	26/06/2006		4		
	Juncus bulbosus	Bulbous Rush	26/06/2006		4		SSSI
	Juncus squarrosus	Heath Rush	26/06/2006		4		Quarry edge
	Luzula sylvatica	Great Wood-rush	14/06/1988		4		Quarry edge
	Montia fontana	Blinks	2006				Scarce in Bucks
	Neottia nidus-avis	Bird's-nest Orchid	01/06/2004		4,10		Nearly Threatened
	Parentucellia viscosa	Yellow Bartsia	26/06/2006		4		
	Potamogeton obtusifolius	Blunt-leaved Pondweed	01/09/1981-30/09/1981		4		
	Ranunculus hederaceus	Ivy-leaved Crowfoot	25/06/2003		4		SSSI
	Spergula arvensis	Corn Spurrey	01/01/1981-31/12/1981		4,10		Vulnerable
	Teesdalia nudicaulis	Shepherd's Cress	26/06/2006		4,10		Nearly Threatened
	Vaccinium myrtillus	Bilberry	09/06/2004		4		Quarry edge & SSSI
	Vicia lathyroides	Spring Vetch	2006				Scarce in Bucks
Insect - Beetle (Coleoptera)	Acalles ptinoides	Acalles ptinoides	25/06/1988		7		SSSI
	Amidobia talpa	Amidobia talpa	1989		7		
	Attactagenus plumbeus	Attactagenus plumbeus	01/06/1987		7		
	Carabus (Morphocarabus) monilis	Carabus (Morphocarabus) monilis	08/06/1987		7,8,11		
	Choleva (Choleva)	Choleva (Choleva) glauca	1989		7		

	glauca						
	Liogluta pagana	Liogluta pagana	1989		7		
	Lucanus cervus	Stag Beetle	2002		11		Nationally Scarce
	Mordellistena (Mordellistena) neuwaldeggiana	Mordellistena (Mordellistena) neuwaldeggiana	25/07/1988		9		
	Otiorhynchus (Tournieria) desertus	Otiorhynchus (Tournieria) desertus	06/08/1988		7		
	Quedius (Microsaurus) longicornis	Quedius (Microsaurus) longicornis	1989		7		
	Rhagonycha lutea	Rhagonycha lutea	04/07/1988		7		
	Synchita separanda	Synchita separanda	11/07/1988		9		Rare
	Xantholinus (Purrolinus) tricolor	Xantholinus (Purrolinus) tricolor	18/07/1988		7		
	Coenonympha pamphilus	Small Heath	03/06/2005		8,10,11		Endangered
Insect - butterfly	Lasiommata megera	Wall	2003		8,10,11		
	Lestes sponsa	Emerald Damselfly	20/08/1989		3		
Insect - dragonfly (Odonata)	Arachnospila (Anoplochares) minutula	Arachnospila (Anoplochares) minutula	01/01/1930-31/12/1960		7		
Insect - hymenopteran	Crossocerus (Cuphopterus) binotatus	Crossocerus (Cuphopterus) binotatus	01/01/1930-31/12/1960		7		
	Ectemnius (Clytochrysus) sexcinctus	Ectemnius (Clytochrysus) sexcinctus	01/01/1960-31/12/1984		7		
	Odynerus (Odynerus)	Odynerus (Odynerus)	01/01/1930-		7,8,		

	melanocephalus	melanocephalus	31/12/1960		11		
	Pemphredon (Ceratophorus) morio	Pemphredon (Ceratophorus) morio	01/01/1960-31/12/1984		7		
	Tiphia minuta	Tiphia minuta	01/01/1930-31/12/1960		7		
	Acronicta rumicis	Knot Grass	01/01/1996-31/12/1996		8,11		All moths sighted in gardens bordering woodland (3 separate locations)
Insect - moth	Adscita statices	Forester	01/01/1950-31/12/1950		8,11		
	Agrochola helvola	Flounced Chestnut	01/01/1938-31/12/1938		8,11		
	Agrochola litura	Brown-spot Pinion	01/01/1986-31/12/1986		8,11		
	Agrochola lychnidis	Beaded Chestnut	01/01/1985-31/12/1985		8,11		
	Allophyes oxyacanthae	Green-brindled Crescent	01/01/1993-31/12/1993		8,11		
	Amphipyra tragopoginis	Mouse Moth	1999		8,11		
	Apamea anceps	Large Nutmeg	1987		8,11		
	Apamea remissa	Dusky Brocade	1982		8,11		
	Aporophyla lutulenta	Deep-brown Dart	1986		8,11		
	Arctia caja	Garden Tiger	1995		8,11		
	Asteroscopus sphinx	Sprawler	01/01/1991-31/12/1991		8,11		
	Atethmia centrago	Centre-barred Sallow	01/01/1999-31/12/1999		8,11		
	Brachylomia viminalis	Minor Shoulder-knot	09/08/1935		8,11		

	Caradrina morpheus	Mottled Rustic	1995		8,11		
	Chesias legatella	Streak	01/01/1999-31/12/1999		8,11		
	Chesias rufata	Broom-tip	01/01/1992-31/12/1992		8,11		
	Chiasmia clathrata	Latticed Heath	01/01/1993-31/12/1993		8,11		
	Chortodes fluxa	Mere Wainscot	1995		8, 11		
	Cyclophora porata	False Mocha	01/01/1939-31/12/1939		8,11		
	Cymatophorima diluta	Oak Lutestring	01/01/1947-31/12/1947		8,11		
	Diarsia rubi	Small Square-pot	1987		8,11		
	Diloba caeruleocephala	Figure of Eight	01/01/1999-31/12/1999		8,11		
	Ecliptopera silaceata	Small Phoenix	01/01/1996-31/12/1996		8,11		
	Ennomos erosaria	September Thorn	01/01/1991-31/12/1991		8,11		Rare
	Ennomos fuscantaria	Dusky Thorn	01/01/1996-31/12/1996		8,11		
	Ennomos quercinaria	August Thorn	01/01/1991-31/12/1991		8,11		
	Epirrhoe galiata	Galium Carpet	31/08/1954		8,11		
	Eugnorisma glareosa	Autumnal Rustic	01/01/1991-31/12/1991		8,11		
	Eulithis mellinata	Spinach	01/01/1999-31/12/1999		8,11		
	Eupithecia abietaria	Cloaked Pug	19/07/1935		9		
	Euxoa tritici	White-line Dart	01/01/1936-31/12/1936		8,11		
	Graphiphora augur	Double Dart	08/07/1981		8,11		

	Heliophobus reticulata	Bordered Gothic	25/06/1935		8,11		Rare
	Hemistola chrysoprasaria	Small Emerald	1994		8,11		
	Hepialus humuli	Ghost Moth	01/01/1996-31/12/1996		8,11		
	Hoplodrina blanda	Rustic	1995		8,11		
	Hydraecia micacea	Rosy Rustic	01/01/1988-31/12/1988		8,11		
	Idaea dilutaria	Silky Wave	01/01/1947-31/12/1947		8,9,11		
	Lycia hirtaria	Brindled Beauty	01/01/1999-31/12/1999		8,11		
	Macaria wauaria	V-moth	01/01/1986-31/12/1986		8,11		
	Malacosoma neustria	Lackey	01/01/1996-31/12/1996		8,11		
	Melanchra persicariae	Dot Moth	01/01/1999-31/12/1999		8,11		
	Mesoligia literosa	Rosy Minor	01/01/1936-31/12/1936		8,11		
	Minoa murinata	Drab Looper	15/07/1949		8,11		
	Mythimna comma	Shoulder-striped Wainscot	21/06/1982		8,11		
	Noctua orbona	Lunar Yellow Underwing	01/01/1959-31/12/1959		8,11		
	Orthosia gracilis	Powdered Quaker	01/01/1999-31/12/1999		8,11		
	Scotopteryx chenopodiata	Shaded Broad-bar	01/01/1982-31/12/1982		8,11		
	Spilosoma lubricipeda	White Ermine	01/01/1999-31/12/1999		8,11		
	Spilosoma luteum	Buff Ermine	01/01/1999-31/12/1999		8,11		
	Tholera decimalis	Feathered Gothic	01/01/1983-31/12/1983		8,11		

	Timandra comae	Blood-Vein	01/01/1999-31/12/1999		8,11		
	Trichiura crataegi	Pale Eggar	01/01/1996-31/12/1996		8,11		
	Tyria jacobaeae	Cinnabar	2002		8,11		
	Watsonalla binaria	Oak Hook-tip	01/01/1999-31/12/1999		8,11		
	Xanthia icteritia	Sallow	01/01/1997-31/12/1997		8,11		
	Xanthorhoe ferrugata	Dark-barred twinspot carpet	1994		8,11		
	Xestia agathina	Heath Rustic	21/08/1949		8,11		
	Alydus calcaratus	Alydus calcaratus	13/08/2001		12		
	Arctocorisa germari	Arctocorisa germari	28/11/2007		12		Mermaids Pond
Insect - true bug (Hemiptera)	Sigara limitata	Sigara limitata	28/11/2007		12		Mermaids Pond
	Hydropotes inermis	Chinese Water Deer	28/08/2006				Mermaids Pond
	Meles meles	Eurasian Badger	23/08/2007			1	
Terrestrial mammal	Muntiacus reevesi	Chinese Muntjac	28/08/2006	3		1	
	Mustela erminea	Stoat	04/07/2001			1	
	Mustela nivalis	Weasel	1994			1	
	Neomys fodiens	Eurasian Water Shrew	09/06/1993			1	

Column A*: Species that are legally protected in the UK

	Abbreviation	**Legislation**
1	**Badger Act**	The Protection of Badgers Act (1992)
2	**HabRegs2,HabRegs3,**	The Conservation of Habitats and Species

	HabRegs4	Regulations 2010 (abbreviated to the Habitats Regulations) consolidate all the various amendments made to the Conservation (Natural Habitats, &c.) Regulations 1994 in respect of England and Wales. The 1994 Regulations transposed the EC Habitats Directive into national law. Schedule 2: European protected species of animals; Schedule 3: Animals which may not be taken or killed in certain ways; Schedule 4: European protected species of plants. The digit refers to the schedule.
3	**WCA1, WCA5, WCA8**	The Wildlife and Countryside Act 1981 as amended. The digit refers to the schedule.

Column B*: Species considered rare or scarce

	Abbreviation	**Status**
1	**Beds BAP**	Bedfordshire Biodiversity Action Plan. Species for which a Species Action Plan exists. See http://www.bedslife.org.uk
2	**BedsBird:**	Species of Conservation Concern in Bedfordshire Birds 2nd Edition. The research and records committee of Bedfordshire Birds Club (BNHS 2007). Sufficies: Red - High conservation concern Amber - Medium conservation concern LoCon - local conservation concern
3	**BedsDragon**	A species of dragonfly or damselfly that is considered of local importance
4	**BedsPlant**	A plant species on the Bedfordshire Rare Plant Register
5	**Birds:**	Birds of Conservation Concern 3 The population status of birds in the United Kingdom, Channel Islands and Isle of Man. Eaton *et al* British Birds 102 June 2009 pages 296–341 http://www.britishbirds.co.uk/BoCC3final.pdf. Suffices Red Amber
6	**GRLpre94:,**	Global Red List (pre 1994, post 1994 and 2001). Suffices:

	GRLpost94:, GRL2001:	EX - Extinct EW - Extinct in the Wild CR - Critically Endangered EN - Endangered VU - Vulnerable NT - Near Threatened LC - Least Concern
7	**N, Na, Nb, NR, NS**	Rare and scarce species (not based on IUCN guidelines): N - Notable Na - Notable: A Nb - Notable: B NR - Nationally Rare NS - Nationally Scarce
8	**NERC**	Species "of principal importance for the purpose of conserving biodiversity" covered under section 41 (England) of the NERC Act (2006).
9	**RLpre94:**	Red List (pre 1994 IUCN guidelines). Sufficies: EN - Endangered EX - Extinct INDE - Indeterminate INSU - Insufficiently known R - Rare THRE - Threatened Endemic VU - Vulnerable
10	**RLpost94:, RL2001:, RL2003:**	Red List (post 1994, 2001, 2003 IUCN guidelines). Suffices: CR - Critically Endangered DD - Data Deficient EN - Endangered EW - Extinct in the Wild EX - Extinct NT - Near Threatened RE - Regionally Extinct VU - Vulnerable
11	**UKBAP**	United Kingdom Biodiversity Action Plan Priority Species
12	**BedsBug**	A species of insect that is considered of local importance

Column C*: Species protected by or referenced in other legislation

	Abbreviation	**Legislation**

1	**Bern I, Bern II**	The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention). Adopted in Bern in 1979 and came into force in 1982.
2	**BirdsDir**	The European Community Council Directive 79/409/EEC on the conservation of wild birds (the Birds Directive). Adopted in 1979. Species listed under Annex 2 for which hunting may be permitted have not been listed.
3	**Bonn**	The Convention on the Conservation of Migratory Species of Wild Animals (the Bonn Convention). Adopted in Bonn in 1979 and came into force in 1985.
4	**CMS_AEWA, CMS_EUROBATS,**	Convention on Migratory Species Daughter Agreements: Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA), Agreement on the Conservation of Populations of European Bats (EUROBATS). NB. The AEWA list has been restricted to species appearing on the British Ornithologists Union list (categories A-C only).
5	**CITES**	The Convention on International Trade in Endangered Species of Wild Fauna and Flora, commonly known as CITES. The Convention came into force in 1975, and the UK became a party in 1976.
6	**HabDir**	The European Community adopted Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (the Habitats Directive). Adopted in 1992.

A.8 Overview of individual documents for Chapter 9

Document 1 (AA) entitled 'Aspley Woods Access Agreement: options report on the future of the agreement' was co-authored by Central Bedfordshire Council Countryside Access Service and Milton Keynes Council in 2009 (the councils, 2009), following the expiry of the previous agreement. It is a Microsoft Word document written for the intended audience of Bedford Estate and Bidwells Land Management.

Document 2 is a webpage (IW), named 'Aspley Woods', authored by The Greensand Trust, accessible in 2010 (Greensand Trust, 2010). It was written for the general public. The webpage is part of the Greensand Trust website; an online facility set up to publicise the work of the Greensand Trust conservation charity. The Trust is the co-ordinator of public access management, funded by the local councils to fulfil the terms of the access agreement. The small piece of text (one paragraph) about the area is found under the 'our services' tab, in the 'places to visit' zone. It is reached by placing a cursor on a digitised map in the direct location of the site.

Document 3 (CWS) is named the 'Wavendon Heaths and Aspley Wood CWS', updated in 2000, and the author's name is not given (Mid Bedfordshire Council, 2000). It is a Word document, written for a mixed audience. CWS stands for County Wildlife Site

Document 4 (FP), named the 'Forestry Plan', was authored by the Forestry Department of Bedford Estate in 2003 (Bedford Estate, 2003). It is a sizeable bound paper document outlining the 21 year plan of the Bedford Estate Woodlands. It is written for the intended audience of the Forestry Commission in order to obtain grant support.

Document 5 (ES), named the 'Ecological Survey', was authored by Countryside Consultants in 2002, for the Bedford Estate Forestry Plan (Bedford Estate, 2003). It is a paper insert in the appendix of the Bedford Estate Forestry Plan, written for the intended audience of Bedford Estate and the Forestry Commission. The survey refers to the entire Bedford Estate woodland, but focuses on ecologically 'valuable' areas.

Document 6 (PS) is named the 'Aspley Guise and Aspley Heath Parish Survey', and was written by Stewart Brown, of the County Planning Department (Conservation Section) in 1979 (Stewart Brown, 1979). It is a paper document located in the district council offices. The document draws together historic information to chart the development of the parish, by way of a Parish Survey which then forms part of the Historic Environment Record. For the purposes of this analysis, features not directly associated with the woods are excluded from this phase of the study.

Document 7 (LCA) is named the 'Mid Bedfordshire District Landscape Character Assessment', and has been authored by Land Use Consultants in 2007 (Land Use Consultants, 2007). It is a pdf document, written for the intended audience of Bedfordshire County Council and Mid Bedfordshire District Council. Whilst the whole document relates to Mid Bedfordshire, Section 6 refers to an area termed 'Wooded Greensand Ridge', and 6A specifically relates to the geospatial area known as the 'Woburn Greensand Ridge'. This portion is selected as the discursive object, as a subsection of the greater Greensand Ridge Landscape Character Area (LCA), and corresponds to an area in the same general vicinity as the study site.

Document 8 (GI), named the 'Green Infrastructure Plan', was authored by the Greensand Trust in 2007 (Greensand Trust, 2007). It is a pdf document available online, written for the Aspley Guise Parish Council. The document refers to the geospatial area which covers the village of Aspley Guise and surrounding countryside, and particularly, Aspley Woods. Excerpts selected for analysis relate to Aspley Woods in the context of the green infrastructure surrounding the village of Aspley Guise.

Document 9 (SSSI) is a report related to a Site of Special Scientific Interest (Bedfordshire County Council, 1998). The document does not have a formal title, but the top line reads "County: Bedfordshire, Site name: Wavendon Heath Ponds", last updated in 1998. The author is not named, however, it was known to be the ecologist (of the time) at Bedfordshire County Council. It is a Word document, written for a mixed audience, but predominantly local government. The document is a citation which gives the "description and reasons for notification" for the object as a Site of Special Scientific Interest. The site is notified under legislation, and this information is held by Natural England.

Document 10 (SAM) is named the 'File reference AA 60739/1 Schedule Entry Copy', and relates to Danesborough Camp. It has been authored by C Edwards, on behalf of the Secretary of State for National Heritage, revised in 1993 (Edwards, 1993). It is a pdf document, written for a mixed audience, and relates geospatial area which comprises a portion of the study site. The discursive object for this document is Danesborough Camp, identified to be an Iron Age hill fort. The document is a Schedule Entry Copy which ratifies the designation of this hill fort as a Scheduled Ancient Monument, listed by English Heritage. The discursive object is also presented as being a member of the group termed "slight unevaluated hill forts"

Document 11 (PG) refers to a cross section of webpage excerpts, taken from online forums concerned with mountain biking, searched for under the heading 'Aspley Woods', and merged into a single document (MTB Britain Forum, 2010; Singletrack

Magazine, 2010; CTC Forum, 2010; Reservoir Chicks, 2010). There are multiple authors, who have in common a shared interest in mountain biking, and who are involved in the organisation of biking activities. The document has thus been compiled from webpages (accessed 04.11.10), written for the intended audience of mountain bikers. The geospatial area constructed by these excerpts relate to a portion of the study site. Source quotes were taken from a number of different online mountain biking forums, which share information within the UK wide mountain biking community.

Document 12 (SP) is named 'Welcome to Aspley Heath Sandpit, and was authored by the Greensand Trust (Greensand Trust, 2009). It is both a pdf document (information leaflet), and an information board, written for the intended audience of the general public. Since the leaflet is identical to the information board provided at the site itself (and given the title "Welcome to Aspley Heath Sandpit") the information board is observed to be the primary location of this text, and the purpose for which it was written. The discursive object in this information leaflet is the Aspley Heath Sandpit, as a recreation ground, and this geospatial area referred to corresponds to a portion of the study site.

A.9 Data tables relating to Chapter 9

A.9.1 Use of qualitative information and expert terminology by documents

Doc	Use of qualitative and expert language
AA	Rich in qualitative language, e.g. the local authority regards the agreement as "…a very rich and valuable opportunity for outdoor access".
CWS	Employs expert language, and rich qualitative description to describe micro-habitats, e.g. "… Mermaids pond, a large pond containing open water and an area of swamp vegetation at the northern end with abundant aquatic vegetation, marshy well vegetated margins and fringed by broadleaf woodland...”
FP	Qualitative language describes estate policy and objectives, factors relevant to the plan, areas of special interest, and general silviculture management. Expert terminology is utilised, particularly in the description of woodland management, e.g. selective thinning, genetic quality of restocking, formative pruning.
ES	Expert ecological terminology is used both to infer woodland types, and to validate findings of the survey. References are made to "W8, W10, and W16 woodland types", and the survey relies upon a ‘framework classification of ecological importance’ utilised by the surveyors. Wavendon Wood deemed ancient semi-natural "… based upon ecological, landscape & historical evidence".
PS	Accessible qualitative language used to present images of the discursive object as a place undergoing radical change, i.e. "Aspley Heath and Wood has suffered a drastic decrease in its acreage since enclosure, due to the proliferation of coniferous plantation…"; and, "the most devastating damage has been done only since the 1950s when opencast digging was resumed on the Heath"
LCA	Some expert terminology is used, e.g. terms such as marginal lands and landscape character sensitivity. Abundant qualitative description.
SSSI	Qualitative language interspersed with expert terminology is used abundantly to construct the site, e.g. "surrounded by birch woodland, the three Ponds and adjacent wet flushes support a carpet of bog moss *sphagnum spp*. and rushes including soft rush *Juncus effusus*, and sharp-flowered rush *Juncus acutifloru* with other bryophytes such as *Polytrichum commune*."
SAM	This description utilises expert terminology in combination with qualitative language to describe both tangible and intangible features, e.g. "slight univallate hill fort", "earthworks", "steep sided spur", and "parallel outer ramparts". Subsequently tangible items (e.g. narrow level berm, external ditch, counterscarp bank, and rampart) are not necessarily accessible to the layperson.
SP	The text uses accessible, descriptive qualitative language, e.g. "layers of volcanic ash deposited in seashore lagoons became the fuller’s earth deposits buried in the sands."

A.9.2 Construction of discursive objects through description of shape and form

Doc	Shape descriptions
AA	Implicitly uses form to construct the object as a special area of land covered by an agreement. Questions over what land should be included in the Access Agreement shows the form of Aspley Woods (as access area) is amorphous
CWS	"Triangular shaped sandpit", sections of wood in a "reverse-C-shaped area", "strips" of broadleaf woodland, and a "very narrow" area of mixed plantation
FP	"Retain edge strips around clear fells as screens", introduce "buffer zones" around areas of ecological sensitivity (i.e. the SSSI)
PS	Multiple references to boundaries which present the discursive object as a site with a mutable, permeable barrier, e.g. the receding Aspley Woods boundary (due to encroachment), formation of a boundary line between the "men of London and the men of Aspley" in Saxon times (A5130), historic wood boundary ditch (SMR 10119) and shifting parish boundaries
LCA	"Large-scale, rolling, elevated landscape", "strongly articulated landform", "elevated wooded belt, visible from a considerable distance"
SAM	Description of the hillfort as 'oval' and situated at the end of a 'steep sided spur', "defences run roughly around the 150 m contour", "natural steepness of the hill slope", " artificially scarped", "steepen the slope", "parallel outer rampart"
PG	Description of topographic features e.g. ascent climbs, downhill runs, terrain.
SP	Shape referred to implicitly through use of the word 'pit', and references to the 'sides of the pit'

A.9.3 Use of quantitative data by corpus documents

Doc	Use of quantitative data
AA	Specific quantitative data are given, comprising the current area of the site (850 acres), the area in each county, local population figures, statistics for demographic patterns, estimates of site visitor numbers, and detailed expenditure tables.
IW	The size of the site in hectares
FP	Specification of those areas undergoing forestry operations, e.g. "40 ha of over mature mixed broadleaf and 50 ha of mixed coniferous woodland felled and regenerating by 2008". Extensive tables provide information on the ages of stands, and the area of compartments.
PS	Estimates of populations throughout the ages, and the value of buildings and animals, e.g. "… Manor worth eight pounds, woodland for over 50 swine" (Court Rolls).
GI	Reference to the 800 acre Access Agreement area, however no numerical information is provided for Aspley Woods itself.
SSSI	Quantitative data appears to be subordinate in comparison to qualitative data, comprising only the area of the site, 4.72 ha, and the composition of it being a set of three ponds.
SAM	Quantitative data supports the descriptive elements of the hill fort, i.e. "210 m north-east to south-west… by 130 m transversely ", with an "internal area of approximately 2.4 ha "; its situation, i.e. "420 m north of The Knoll"; and how it compares to other hill forts, said to be "… generally between 1 ha and 10 ha in size". Additional measurements are given for the hill fort's defences, which "run around a 150 m contour", and the rampart which averages "… 1.5 m high on its lower side and is 1.7 m from its top to the ditch bottom on the upper side". An Ordnance Survey map (1:10,000) showing Danesborough Camp

A.9.4 Contextualisation of discursive object in relation to location

Doc	Wider location in which the discursive object is situated
AA	Location is constructed by reference to the land owning Bedford Estate; the local community (through stating a commitment to "…working with partners to protect and enhance the area's local environment and to use local access to fulfil a wide range of important social and community needs…"); to local authority responsibility (i.e. 99 ha of the site in Milton Keynes, 245 ha in Bedfordshire); and to regional significance (through reference to the South Midlands Sub Regional Strategy, and by stating that the "…Access Agreement is the largest of its kind in lowland England").
IW	The location of the wood is described by a grid reference, in relation to three surrounding villages; and as a higher order site which contains other sites within it, namely the village sandpit, SAM and SSSI.
CWS	Grid references are used to demarcate specific areas of the wood and Heath e.g. "SP93453450 to SP93703421, the woodland has a mature canopy and a sparse understory and ground flora". Compass points are used to indicate sections of the wood and heaths, and location in relation to the nearby village of Woburn. The local authority is also identified to be Central Bedfordshire.
FP	The location of the wood is given in terms of local landscape character. Forest blocks are acknowledged as being close to villages and towns, and accessible from Milton Keynes. Large mature trees are said to be important both in internal and external landscapes, and commercial blocks are seen as being important in the local landscape. The location of woodland blocks also makes county boundaries influential, since the document observes that "… variations in terminology and approach (occur) across respective Council boundaries." Within the site itself, location is identified on a micro level through compartmented stands of trees each having their own identification code.
ES	Location is indicated through the use of compartment numbers to demarcate sections of land which correspond to the Bedford Estate woodland plan.
PS	The discursive object is located in relationship to the developing village and surrounding parishes, and is regarded as an important feature in the historic development of settlements. The Heath and Woods are also situated in the context of the local manor, and the burgeoning Bedford Estate, both of which influenced the development of the natural resources surrounding the village. The Heath is also pinpointed by this document as being 400 to 550 feet above sea level, a feature which influenced its later perception as a health resort.
LCA	The discursive object is located in a regional context in direct relationship to the underlying rock formation, the western section of the "prominent band of Lower Greensand" said to run south-west to north-east across the county. Local urban settlements are also named. The height above sea level is provided.

GI	The document presents Aspley Woods as a subsection of three larger areas, the Parish, the County Wildlife Site, and the Access Agreement. The description of the wood as 'dominating' the GI in the south of the parish is interesting, since domination is evidently a strong word, particularly in reference to a semi-natural area. It is perceived that the use of this word may refer to the size of the wood, or perhaps indirectly to the influence of the land owning estate, which is observed to hold considerable influence..
SSSI	The site is constructed as a location through grid references and an Ordnance Survey sheet number. Other geographical details given include the site situation in relationship to Woburn, ("2 km north-west of…"), and in relation to its placement "… on the Lower Greensand". The source also advises that plant communities within the site are "uncommon throughout eastern England", thus locating this small site within the context of a far greater region.
SAM	Location is given in the context of local authorities, i.e. the parish of Wavendon, and the district and county of Milton Keynes. The hillfort is placed in context of national rarity (150 nationally), said to be most common in Devon, and having a "relatively dense" distribution in Wessex, Sussex, the Cotswolds, and the Chilterns. The source also advises that hill forts generally are found to be "… situated on or close to hilltops", indicating their location in areas with elevated or undulating landscapes.
PG	The site is presented by different forums as offering the best biking in the south-east , as having the best trails south of the Peak District, and as being one of the most popular jumping spots around London, thus presenting the site as being geographically relevant to the majority of lowland England. The sources also connect the site to the urban settlements of Milton Keynes, and the "pretty village" of Woburn Sands.
SP	The text situates the discursive object within Aspley Heath Parish Council, and upon the Greensand Ridge.

A.9.5 Construction of discursive objects through description of physical features

Doc	Feature classification	Examples of specific physical features
AA	Recreation (broad)	Defined tracks, mountain bike course, rangers, structures, signs
IW	Ecology (habitats) Recreation (broad)	Conifer plantation woodland Paths
CWS	Ecology (habitats) Hydrology	Mature coniferous plantations, marshy grassland, broadleaf woodland, sparse understory, ground flora, field, rich flora, mature canopy, dense sub-canopy Marsh, stream, acidic flush, wet ditch, sensitive acid wetland community
FP	Land use (silviculture) Ecology (broad) Hydrology Unwanted items	Stands, standing timber, mature trees, edge strips, wind firm trees, individual tree retentions, veteran trees, felling coupes, deadwood, and specific trees Biodiversity, wildlife, heath Ponds, damp ground, ditches, silt traps Fires, dumped cars, pest populations, invasive plants
ES	Ecology (dendrology) Ecology (specific)	Non-native trees, broadleaf fringe, mature trees, diverse ground and shrub layer Nightjar, woodlark, and oak
PS	Geology Built infrastructure Land-use (agriculture) Society	Sedimentary deposits, friable coarse-textured soil, sandy drift, parent rock Manors, dwellings, houses, road system Communally worked fields, enclosures, plant nutrition, swine, wooded clearances, deer gate Populations, foodstuffs, workers, turf, Furze, faggotts
LCA	Landscape features Built infrastructure Recreation (broad) Geology	Variable fields, intact evergreen hedges, areas of woodland Disused workings, settlement, built form, boundaries Greensand Ridge Walk, and Milton Keynes Boundary Walk Greensand Ridge
GI	Ecology (habitats) Recreation (broad) Land-use	Heath, acid grassland and semi-improved permanent grassland Way marked pedestrian, bike and horse trails, mountain biking area Planted conifers, quarry, recreation
SSSI	Ecological (specific)	Specific flora and fauna identified by common and Latin names
SAM	Built infrastructure	Slight univallate hillfort, earthworks, steep sided spur,

		parallel outer ramparts, narrow level berm, external ditch, counterscarp bank, and rampart.
PG	Recreation (specific)	Freeride *drops*, dirt *jumps*, down*hill* runs, trails, short-course DH runs, fire road, and 'lines'.
SP	Geology	Sand, sandstone, volcanic ash, fuller's earth deposits, Lower Greensand
	Hydrological items	Shallow sea, seashore lagoons
	Land-use	Recreation ground, sand extraction
	Ecological (specific)	Heather, bilberry, conifers, wildlife.

A.9.6 Construction of discursive objects in relation to ecological/social processes

Doc	Process classification	Examples of specific social and ecological processes
AA	Behaviour management Legislation Accessibility	Permit system, excepted land, regulated management Byelaws, public liability, access agreement legislation Public access, equestrian access, management, maintenance.
IW	Legislation Behaviour management	Access Agreement, SAM and SSSI Valid permit, byelaws, permitted routes
CWS	Behaviour management Conservation Ecology	Disuse of sandpit, public access to site Management of Rhododendron, grazing management Acid mire fed by acidic flush, wet ditch that supports rich flora
FP	Behaviour management Silviculture Meteorology Ecology	Conditional public access, ranger service, controlling, public use Restocking, species choice, work programme, specialist work, best forestry practice, genetic quality, selective thinning, formative pruning, and silviculture systems Local climate, prevailing winds, light levels Natural regeneration
ES	Ecology Classification systems	Habitat succession, appropriate management Framework classification of ecological importance, positioning as an ecologically unit, woodland types, naturalness or degree of modification, representativeness and rarity
PS	Property rights Commerce Institutions	Estate, title deeds, manorial lands, enclosure, common Significant industry, healthy inland resort, long-term land-use policies, capital investment Independent civil parish, ecclesiastical parish
LCA	Conservation Land-use Development policy Geology	Landscape restoration & conservation, conserving ancient woodland & earthworks, heathland restoration Mineral extraction, commercial forestry, large-scale felling Residential and employment development, key green infrastructure, extending and connecting woodland resources Weathering, erosion and deposition
GI	Classification systems Property rights Legislation	*'Ancient* boundary banks', '*ancient* woodland' Estate ownership Access Agreement

	Resources	Capital, maintenance, and visitor pressure
SSSI	Legislation	Designation data
	Ecology	Ponds and wet flushes support a carpet of bog moss
SAM	Property rights	Enclosures, redistribution centres, places of refuge, permanent settlements
	Legislation	Scheduling of the monument, revision of the scheduling, excavation, interpretation, definition, and preservation.
PG	Sense of mystery	site as 'legend', 'best kept secret', 'awesome, scary' lines
	Non-conformity	Original builders of the dirt jump complex as 'renegades', Milton Keynes as 'not a traditional type of area' for biking
	Site comparison	The best trails/ mountain biking in the south-east/London.
SP	Institutions	Charity, parish
	Accessibility	Historic restricting of access, being 'welcome'
	Geology	Erosion, and implicit references to attrition and the ice age

A.9.7 Construction of discursive objects through reference to time

Doc	Time period and temporal issues described
AA	The document describes the development of the agreement as a legal document through time. It provides dates for legislation (1949), the period it covers (1990 until 2010; 20 years), and the amount of notice needed for termination (12 months). Dates are given for the involvement of the Greensand Trust (since 1999), and the subsequent formal service agreement (2003 until 2010). Dates given in support of proposed options include those when funding changed, records of expenditure through the years, results of a visitor survey, and the growth of Milton Keynes (1990, projected until 2030).
IW	The site is presented as a 'daytime venue', indicated by information at the top of the page advising the car park is closed at night. Reference is also made to Danesborough Hill (scheduled ancient monument) emphasising historic aspects.
CWS	Dates in the document cover approximately 50 year comprising the date of SSSI notification and re-notification (1954 and 1986), dates of the act used for designation (1949 and 1981), the date of CWS recognition (1990), survey (1990), and the CWS boundary update (2000). The document also refers to "ancient semi-natural woodland".
FP	The document places Woburn Woods in a historical context. This includes a brief history of the Russell family (estate owners) since 1547, and records Woburn Abbey as a family home since 1627. Reference is made to 'The Evergreens' being planted in the 1700s. In terms of the forestry plan itself, time is invoked in a cyclical nature, i.e. each forestry plan covers 21 years, with plans to restructure the wood in three phases, each lasting seven years. Restocking and felling of trees is time specific, within time frames particular to certain species, e.g. Oak is felled at approximately 140 years old; Ash and Sycamore at approximately 70 years; Sweet Chestnut at 50 to 60 years; Scots Pine at 60 to 80 years; Corsican Pine at 50 to 70 years; and Douglas Fir at 50 to 70 years. Subsequently this document employs a long-term approach. Reference is also made to older age and 'over mature trees', seen as being overrepresented and thus something to be addressed … over the estate for the foreseeable future".
ES	The site is constructed through time in a non-specific, historical sense. Details of mature trees and ancient semi-natural woodlands implicitly reference approximate post-mediaeval time, and the word "ancient" implies a period considerably older than this. Location is indicated through the use of
Doc	Time period and temporal issues described
ES cont.	compartment numbers to demarcate sections of land. These correspond to the Bedford Estate woodland plans, and relate to particular stands of trees planted at various points in time. Thus with specialist inside knowledge, in addition to location, these compartment numbers also refer to particular species and ages

	of tree.
PS	Many paragraphs contain references to particular years or eras such as mediaeval, Roman and Saxon times. The earliest time detailed is the recording of the name Aspley in 969 A.D., followed by a discussion of mediaeval and post mediaeval life in and around the village. Descriptions then include entries in the Domesday Book (1066), extracts from Court Rolls (1592 to 1713), memoirs (1746), assorted maps (1745, 1761, 1782), details of the discovery of a Roman amphora (1769), the development of the parishes (1867, 1883, 1907), and the construction of Wavendon Heath Ponds (1927) by estate workers. The date is also given for the undertaking of this Parish Survey (1979).
LCA	The time period presented by this document as being relevant to the Woburn Greensand Ridge begins in the Mesolithic period, with the creation of soils. The document mentions marginal land of the mediaeval period, the domination of Woburn Abbey since the Middle Ages, and 20th-century sand extraction.
GI	The Wood is presented in the context of the long-term growth strategy for the region. This makes us aware of a period extending for 20 years in the future, and the demographic and urban development changes that will occur during that time. Reference is also made to ‘ancient woodland’ and ‘ancient woodland banks’. This expands our awareness of the time relevant to the wood, extending it back for a significant but non-specified time period.
SSSI	The use of time to construct the discursive object is shown by the provision of dates which relate to the designation process, i.e. the dates of notification (1954 and 1986), the date of acts which allow notification (1949 and 1981), and the recalculation and re-presentation of details (1998). These dates focus on the notification and thus *legal protection* of the area, rather than giving dates which explore the *origins* of the site. No historic information is provided for the Ponds.
SAM	Time is an important element in the construction of this object, since dating of the hillfort is a strong component in its designation. The text states that excavations suggest the hillfort is "earlier than second century A.D., probably dating between first century BC and first century A.D.". The source informs us of the eras that are significant to hill forts generally, i.e. late Bronze Age to early Iron Age. The date of scheduling for this monument is 1933, with protective legislation in 1979, and a revision of the scheduling information in 1993.
PG	One reference related to time, in the context of short downhill runs being "up to 30 seconds in length", a very small amount of time. The source uses time rather than distance to describe a piece of track, which has the effect of focusing attention on the experience of the biker rather than the land.
SP	This geologically orientated work has a very wide relevant timespan, including information on the formation of the Greensand Ridge over 120 million years ago. Reference is also made to 18th-century squatters, the formation of parishes and restricted sandpit access in 1883, and to the recreational use of the

	pit since 1939, thus spanning three centuries. The text also refers to 18th-century buildings in the area.

A.9.8 Use of graphics by corpus documents

Doc	Use of graphics
AA	No graphics, but tables show financial data and fundraising options.
IW	Graphics support the text, and comprise photographs of the wood (devoid of any people), a non- Ordnance Survey map of the western tip of the Greensand Ridge, and Greensand Trust logos.
CWS	One graphic, an Ordnance Survey map (1:10,000) with GIS overlay to show the areas designated as CWS and SSSI. This map shows names of separate areas of the site i.e. New Wavendon Heath, Old Wavendon Heath and Aspley Woods, and specific features i.e. elevation (113 m contour, 159 m peak) Aspley Heath Lodge, workings (disused), quarry, Fuller's Earth Lodge, Ling Hill, various paths.
FP	Detailed charts of plans for separate compartments, a sketch of the SSSI, and extensive maps (1:10,000) with GIS overlays showing individual compartments and blocks in three-year phases.
PS	Sketches of wood boundary ditches, excerpts from hand drawn historic maps.
LCA	A map of the County showing the relevant portion of the Greensand Ridge referred to, and multiple photographs of the landscape.
GI	Maps (1:30,000) with GIS overlays, photographs of recreational users, diagrams, charts, and organisational logos.
SSSI	A single graphic accompanies the text; a close-up Ordnance Survey map (no scale given but estimate 1:5,000) showing the location of the triple pond system and spring.
SAM	A Ordnance Survey map (1:10,000) showing Danesborough Camp
PG	Photographs of mountain bikers and scenery, and adverts from mountain bike equipment selling companies.
SP	A map (not to scale; shows the sand pit, the surrounding woodland, paths and a portion of Church Road), sketches of wildlife, a historic photograph and the logos of the landowner (Bedford Estate), the managing organisation (Greensand Trust) and funding (lottery grant).

A.10 Hand-drawn map of Aspley Guise and area

From the 'enjoy and explore Aspley Guise' leaflet: reproduced with permission of Pat Perry