A University of Sussex PhD thesis

Available online via Sussex Research Online:

http://sro.sussex.ac.uk/

This thesis is protected by copyright which belongs to the author.

This thesis cannot be reproduced or quoted extensively from without first obtaining permission in writing from the Author

The content must not be changed in any way or sold commercially in any format or medium without the formal permission of the Author

When referring to this work, full bibliographic details including the author, title, awarding institution and date of the thesis must be given

Please visit Sussex Research Online for more information and further details
The Discourse and Practice of Human Relations with Nature in English Conservation

Benedict Dempsey
Science Policy Research Unit (SPRU)
University of Sussex

Thesis submitted for the degree of Doctor of Philosophy in Science and Technology Policy Studies

June 2021
I hereby declare that this thesis has not been, and will not be, submitted in whole or in part to another University for the award of any other degree.

Signature:............................................

Benedict Dempsey
Summary

It is a pivotal time for nature conservation. In the context of a global ‘biodiversity crisis’ and widespread debate about how to approach conservation in the 21st century, conservationists are being challenged to think about how they relate to ‘nature’, and the implications for the approaches they take. This discussion is founded on longstanding debates including whether ‘humans’ are part of ‘nature’ or separate from it, whether ‘nature’ is dynamic or in equilibrium, the extent to which conservationists should attempt to ‘manage’ or ‘control’ nature, and whether conservation should embrace ‘novel’ ecosystems or adhere to past archetypes. These issues are taking on a new relevance with the emergence of the idea of the ‘Anthropocene.’

However, high-level global debate on these issues risks obscuring the complexity and heterogeneity that exists both within and between different contexts. To understand how conservation is being conceived and practised, it is important to focus on properly exploring conservation in particular places. This thesis therefore presents three papers that analyse the discourse and practice of conservation in England.


These findings clarify conservation discourse in England. In particular, they reveal resistance to natural capital approaches and apparent acceptance of rewilding. This analysis provides guidance for conservation leaders seeking to implement strategies like the UK’s 25 Year Environment Plan, including suggestions for mitigating contentious features of natural capital approaches. By clarifying different perspectives, this paper aims to increase understanding and common ground among English conservationists, as they pursue their shared goal of addressing the biodiversity crisis.

The second paper, ‘Everything under control? Comparing Knepp Estate rewilding project with ‘traditional’ nature conservation,’ has been published in PLoS ONE. It uses ethnography to explore questions around the human management of nature in conservation, with particular focus on the concept of ‘control’. The paper identifies multiple dimensions of control (‘stabilisation’, ‘location’, etc.).
‘prediction’ and ‘outputs’), illustrating that control is not a simple, linear concept. It compares two ethnographic case studies: the Sussex Wildlife Trust’s Old Lodge nature reserve; and Knepp Estate, one of the most influential rewilding projects in the UK. It uses them to test assertions made about control in ‘traditional’ conservation and ‘rewilding’.

The paper outlines how Old Lodge does not exert precise control in all respects, but involves elements of uncertainty and negotiation. It describes how Knepp’s model of rewilding reduces control in some dimensions but potentially increases it in others. It concludes that, while Knepp’s rewilding does represent a significant conceptual departure from ‘traditional’ conservation, it should not be characterised as an approach that reduces control in a simplistic way.

Based on this analysis the paper argues that rewilding is not necessarily underpinned by a reduction of control. It proposes instead a framework that analyses how different dimensions combine to form multiple ‘configurations of control.’ Using this framework, debate about the place of rewilding in conservation can become less polarised, and instead involve an active discussion of what configuration of control is desired. This approach has the potential to increase understanding and enable rewilding to take its place as part of plural conservation strategies, in the UK and globally.

The third paper builds on the first two, and has not yet been submitted to a journal. It combines the discourse analysis in paper one with the analysis of practice in paper two, and analyses both against different visions of conservation in the ‘Anthropocene.’ It focuses specifically on the role of human management and the orientation of conservation in time. Using both Q method and ethnographic analysis, this paper presents a picture of conservation that contains rich complexity, but also some broad themes, specifically: an acceptance of the ubiquity of some form of human influence over nature in England; and an acceptance that it is not possible to recreate ecosystems from the past, even if some perspectives would like to. In broad terms, both discourse and practice are consistent with future-facing, dynamic, human-oriented visions of conservation.

These findings contribute to discussion of conservation in relation to the idea of the ‘Anthropocene’. They suggest that, in the specific context of Sussex in England, the forms of conservation that are emerging have much in common with ‘new conservation’ approaches. They also potentially go further, with aspects consistent with more radical, future-facing visions of conservation like the ‘Cosmoscene’ and ‘convivial conservation’ that reframe the human-nature relationship. These visions include nuanced perspectives on how people connect with and care for nature.

The findings of these three papers have interesting implications. In particular, despite the characterisation of conservation debates as polarised, these papers reveal significant common
ground that can help to shape approaches to conservation in England. Paper one illustrates that the four perspectives share significant characteristics, including a tolerance of diverse opinions. Paper two illustrates that even two conservation sites that ostensibly operate at opposite ends of a spectrum of control actually have much in common in practice. By recasting the concept of ‘control’ in conservation to be a multi-dimensional framework of ‘configurations of control’, paper two offers a way to reduce the binary polarisation of ‘high-control’ and ‘low-control’ visions of conservation. Paper three shows how the discourse and practice of conservation in England reveal visions of conservation that are consistent with nuanced, future-facing, human-oriented conservation that are being discussed in relation to the ‘Anthropocene’.

Taken together, these papers provide an in-depth insight into English conservation, at a time when conservation frameworks are being fundamentally reshaped. They draw on broad conservation debate and identify how these issues relate specifically to England. They also illustrate the importance of understanding localised, context-specific examples to inform discussions about how to approach modern conservation.
Acknowledgements

There are many people to whom I am heavily indebted, and without whose support this research would not have been possible.

First, thank you to my supervisors, Prof. Andy Stirling and Dr Saurabh Arora. I will be forever grateful that they accepted me as a PhD student and provided me with support and guidance throughout.

I am also grateful to the ESRC Doctoral Training Centre at the University of Sussex, whose generous support enabled me to take on this PhD (grant reference ES/J500173/1).

Thank you to the many others who have provided valuable contributions and insights throughout my research, especially Dr Chris Sandom, Prof. Chris Thomas and Prof. Jeremy Thomas. I am grateful to the reviewers and editors of the Journal of Land Use Policy and PLoS ONE for their comments on my published papers.

Special thanks to all the participants in my research, both the Q method study and ethnographies. They generously contributed their time and wisdom, without which the research could not have happened. Thank you in particular to Mark Monk-Terry, Martin Wilkinson and all the volunteers at Old Lodge reserve; and to Charlie Burrell, Isabella Tree, Penny Green, Patrick Toe and all at Knepp Estate, for their generosity in enabling my research to take place.

Finally, thank you to my family, especially my parents for their support and inspiration; Esther for her love and forbearance; and Rosalie, Iris and Athena for keeping me on my toes this whole time.
'There are no safe paths in this part of the world. Remember you are over the edge of the wild now, and in for all sorts of fun wherever you go.'

J.R.R. Tolkien, The Hobbit
Preface

This research began with a lifelong ambition to work in nature conservation. Growing up, conservation was always one of my greatest interests, but somehow as an adult I never found my way there professionally.

I did, though, retain a love of nature, and when I encountered the idea of ‘rewilding’ I was immediately fascinated. I first heard the term when working in the BBC Science department around 2005. Like many people, I was excited about the idea that a recovery of nature might be possible, and that the story of conservation did not have to be one of perpetual managed decline. But for years it was simply something that I encountered from time to time in articles or TV programmes, intriguing but never more deeply explored.

Then around 2015 I began thinking seriously about researching a PhD, and the idea of rewilding came back to me. I had studied for my MA in Science, Society and Development in 2010/11, so knew enough about the social science of environment to know that rewilding must hold some interesting research questions.

During daily commutes on the train I read about rewilding projects and eventually put together a research proposal. I was delighted that Andy Stirling and Saurabh Arora agreed to supervise me, and when my application for ESRC funding was accepted the research became possible, to start in September 2016.

I soon discovered that, while rewilding was indeed extremely interesting, there were other elements of human relations with nature in conservation that were both fascinating and important. I encountered the idea of the ‘Anthropocene’ and began to read about how it intersected with conservation generally, and rewilding specifically.

Over time, I developed the set of research themes that are presented here. The issue of rewilding is still prominent, but this thesis touches on other questions too, that are broader and relate to conservation more generally.

As my research progressed, the themes I was exploring also became increasingly popular and relevant. The implications for conservation frameworks of the Brexit referendum are profound, with major new legislation coming through during the course of this research.

Meanwhile, over the past five years interest in rewilding has exploded. What was a slightly peripheral, niche area has become increasingly mainstream and influential, both in conservation itself and in society generally. While George Monbiot’s book ‘Feral’ put rewilding on the public map
in the UK, Isabella Tree’s ‘Wilding’ – charting the project at Knepp Estate and published in 2018 – captured public imagination by showing in detailed, practical terms what one form of rewilding looks like. Rewilding is now a major subject of conservation debate in both professional and public spheres. I hope this thesis can contribute in a small way to that discussion.

Finally, this research has now enabled me to fulfil my ambition to work in nature conservation. I have been offered the role of Wilder UK Landscapes Adviser at WWF, to start in August 2021. In that role, I hope to continue working on the issues explored in this thesis, which I think are both so fascinating and so important.
## Contents

**Summary**  
3

**Acknowledgements**  
6

**Preface**  
8

**List of Figures, Tables, Maps and Photographs**  
12

**Introduction**  
13

1. Background to conservation discourse and practice in England  
14
   1.1 Human-Nature separation or integration  
17
   1.2 Equilibrium and dynamism  
17
   1.3 Novel ecosystems and non-native species  
19
   1.4 The location of nature – ‘human’ and ‘wild’ landscapes  
20
   1.5 Natural capital  
21
   1.6 Restoration and species introductions  
22
   1.7 Rewilding  
23
   1.8 The ‘Anthropocene’  
25
2. Research Questions  
27
3. Methodologies  
28
   3.1 Discourse analysis  
29
   3.2 Analysis of practice  
30
   3.3 Combining discourse and practice  
32
4. Paper Summaries  
33

37

1. Introduction  
38
2. Background  
38
   2.1 Conservation discourse  
38
   2.2 The conservation policy landscape in England  
40
3. Methodology  
41
4. Results and Discussion  
45
   4.1 Perspective 1 – Management of Changing Nature  
47
   4.2 Perspective 2 – Innovation in Nature  
47
   4.3 Perspective 3 – Protection of Threatened Nature  
48
   4.4 Perspective 4 – Re-establishment of Wild Nature  
49
   4.5 Areas of differentiation  
50
   4.6 Areas of common ground  
53
   4.7 Characteristics of those holding different perspectives  
54
5. Conclusions  
59

**Paper 2: Everything Under Control? Comparing Knepp Estate rewilding project with ‘traditional’ nature conservation**  
62

1. Introduction  
63
Figures, Tables, Maps and Photographs

Paper 1

Figure 1: Q sort template 44
Figure 2: Key differences between the perspectives 53
Table 1: Participants and how their Q sorts load on the four rotated factors 46
Table 2: Factor array showing idealised sort patterns for each perspective 55

Paper 2

Map 1: The locations of Knepp Estate and Old Lodge 69
Photograph 1: Longhorn cattle at Knepp 81
Photograph 2: Tamworth pigs at Knepp 84
Table 1: Comparison of control dimensions 88
Figure 1: Visualisation of indicative configurations of control 88

Paper 3

Figure 1: Perspectives in English conservation 103
Introduction

In the context of a global ‘biodiversity crisis’ (Sánchez-Bayo and Wyckhuys, 2019) and widespread debate about how to approach nature conservation in the ‘Anthropocene’ (Kareiva, Marvier and Lalasz, 2012; Corlett, 2015; Lorimer, 2015; Buscher and Fletcher, 2020), conservationists are being challenged to think about how they relate to ‘nature’, and the implications of their perspectives for the approaches they take (Marris, 2011; Wilson, 2016; Thomas, 2017).

This discussion is founded on longstanding debates that include whether ‘humans’ are part of ‘nature’ or separate from it, whether ‘nature’ is dynamic or in equilibrium, whether conservation should promote active management of ecosystems by people or not, and whether conservationists should embrace or reject ‘novel’ ecosystems. These issues are taking on a new relevance in the context of the idea of the ‘Anthropocene’ (Crutzen and Stoermer, 2000; Malhi, 2017), and the emergence of ‘rewilding’ as a prominent concept in conservation (Wynne-Jones, Strouts, et al., 2020).

Debate about these issues represents significant apparent tension within conservation discourse and practice, with a wide range of proposals at a global level for how people should approach their relationship with ‘nature’ (Marris, 2011; Lorimer, 2015; Buscher and Fletcher, 2020).

A common critique of this debate, however, particularly in relation to the ‘Anthropocene’, is that global discussions artificially simplify the relationships between ‘humans’ and ‘nature’, presenting them as if they are singular entities (Haraway, 2015; Maris, 2015; Preston, 2015). By doing so, such discussion of conservation marginalises the complexity and heterogeneity that exists around these concepts, both within and between particular contexts.

In reality, although significant debate takes place at a global level, the way these issues are actually expressed varies substantially from place to place (Bennett et al., 2016); and in any given context there will be multiple different ways in which the same issues are perceived (Leach, Scoones and Stirling, 2010). Consequently, to understand conservation, and to make important decisions about how to approach it, requires analysing how ‘humans’, ‘nature’, and the relationships between them, are understood in particular places. Without in-depth analysis of specific contexts, the multiple, nuanced ways in which human relations with nature are expressed will be missed – leading to an incomplete or inaccurate understanding of how and why conservation discourse and practice are expressed in the ways they are.
This thesis therefore aims to contribute to knowledge and understanding of human relations with nature in conservation by presenting a detailed analysis of the particular context of England. By exploring the complexity of conservation in England in detail, it attempts to identify and highlight important issues and nuances that may be missed in more general conservation debate. It is hoped this analysis contributes both to clarifying important issues for English conservation itself — including how they relate to policy — and to deepening understanding of how conservation is being discussed and approached internationally.

This introductory section begins by setting out some of the key current areas of debate within conservation as they relate to England. Based on this background, it outlines a set of research questions, followed by a description of the methodologies used to explore them. Finally, the introduction summarises how each of the papers presented in this thesis contributes to answering the questions posed.

1. Background to conservation discourse and practice in England

The history of discussion about how ‘humans’ relate to ‘nature’ in conservation is extremely long and complex. While it is not possible to explore these themes exhaustively here, the following section attempts to highlight some of the most significant issues of debate for conservation in England.

England is an interesting context for these discussions for two reasons in particular. First, it has been described as one of the most nature-depleted countries on Earth, with a decline in the distribution and abundance of species throughout the past 50 years (Hayhow et al., 2019). Consequently, it is a place where conservationists are grappling with competing visions of preserving existing landscapes versus restoring or rewilding dynamic processes and systems. This makes analysis interesting for how conservation is approached in England itself, and also offers the potential for insights relevant to other densely populated, industrialised countries.

Second, it is a pivotal time for conservation in England following the United Kingdom’s (UK’s) decision to exit the European Union (EU) (Bateman and Balmford, 2018). This change, especially the associated withdrawal from the Common Agricultural Policy (CAP), is bringing profound changes and an overhaul of the regime of subsidies paid to farmers and landowners for managing the landscape. This is taking place through the implementation of the ‘25 Year Environment Plan’ (UK Government, 2018) and associated legislation, including the Agriculture Act 2020 and the forthcoming
Environment Bill. It is therefore a particularly interesting time to examine how debates about approaches to conservation are unfolding in England.

Environment policy in the UK is a devolved matter, under the jurisdiction of the respective governments of Wales, Scotland and Northern Ireland. For this reason, the focus of this thesis is England specifically, not the whole UK.

Conservation in England has historically been comprised of a complex patchwork of different approaches and sites, of different landscape types and with differing ownership statuses, legal designations, land uses, objectives and scales. Formal conservation activity has been structured around different ‘tiers’ of designated sites or areas – including sites that are afforded a high level of protection because of their conservation value, for example Sites of Special Scientific Interest (SSSIs); sites with high biodiversity value but without full protection, such as Local Wildlife Sites; and landscape-level designations that include biodiversity conservation but also include other objectives, for example Areas of Outstanding Natural Beauty (AONBs) and National Parks (Lawton et al., 2010). AONBs and National Parks combined cover 24% of England (Isaac et al., 2018) and contain within them multiple smaller sites with specific designations.

Each designation status brings its own specific and, potentially, competing objectives and management requirements. They also reflect varied attitudes and perspectives on conservation, ranging from the preservation of historical landscapes and ‘beauty’ to more specific focus on the delivery of biodiversity outcomes (Adams, 2003).

Outside protected areas, significant conservation activity in England has historically taken place within a range of schemes encouraging farmers and land managers to deliver environmental objectives. In the past, these have included Entry Level Stewardship (ELS), Higher Level Stewardship (HLS) and Pillar II of the EU Common Agricultural Policy (Franks, 2016). The recent Agriculture Act and Environment Act will transform the way in which land managers are incentivised to deliver environmental benefits, with the implementation of payment for public goods and Environmental Land Management Schemes (ELMS) in line with the ambitions of the 25 Year Environment Plan (UK Government, 2018).

The designation status contributes to the approach taken at a site. For example, a site with existing high biodiversity value and legal protection may be managed to preserve its extant condition. In contrast, a site outside a protected area that has been subject to intensive agriculture, will likely be considered to have less existing biodiversity value and therefore be managed differently, for example using ecological restoration (Corlett, 2016).
In addition to designation status and approach, conservation in England takes place across sites with different forms of ownership and participation. Many nature reserves are owned and managed by large conservation non-governmental organisation (NGOs), such as the Wildlife Trusts, National Trust and Royal Society for the Protection of Birds (RSPB). Others are privately owned by individuals, families, businesses or institutions; or are in a form of public ownership, such as the Ministry of Defence. The ownership of a site or area has implications for its governance, while landscape-scale conservation is required to combine a range of different stakeholders (Wildlife Trusts et al., 2017).

Conservation activity is also funded from a range of different sources, including public, private and charitable revenues, while the social, economic and political status of conservation sites, and of conservationists, varies greatly – from the well-funded and highly influential to community volunteers, activists and campaigners (Campbell, 2007).

A study of conservation in England, therefore, should reflect sites and activities that represent a range of the different characteristics of conservation in England. While it is impossible for a single study to capture every aspect of English conservation activity, this study attempts to account for differences between sites with formal conservation designations and those without, between different approaches to delivering conservation outcomes, between different types of landscape and between different types of ownership and participation. This is outlined further in Methodology, below.

Importantly, the issues in conservation debate outlined here are those that relate most closely to current discussion in England. Consequently the themes and literature are dominated by material produced in Europe and North America – though this should acknowledge that ‘western’ conservation ideas have been significantly informed by thinking and practice from other parts of the world, especially as a result of European colonial history (Grove, 1995). In describing the key discussions relevant to conservation in England, their context should be borne in mind throughout.

With this understanding, it is possible to explore some of the key themes within the discourse of ‘western’ conservation relevant to England. These include whether conservationists should prioritise the composition or the processes of ecosystems (Corlett, 2016; Jepson, 2016a); the degree of human management (Adams, 2003); whether ‘novel’ ecosystems and non-native species should be accepted or eradicated (Hobbs, Higgs and Harris, 2014; Murcia et al., 2014; Thomas, 2017); whether conservation resources should be focused on designated protected areas or across human spaces as well (Marr, Howley and Burns, 2016); whether conservationists should undertake more introductions and reintroductions of species, or fewer (Seddon et al., 2014; Rubenstein and Rubenstein, 2016; Svenning et al., 2016); and whether it is useful or harmful to describe nature in
terms that integrate it into capitalist economics, such as ‘ecosystem services’ and ‘natural capital’ (Kareiva, 2014; Maris, 2015). These questions stem from more ancient discussion of how humans relate to ‘nature’ (Descola, 1992). The way they are answered has profound implications for social and environmental policy (Leach, Scoones and Stirling, 2010; Scoones, Leach and Newell, 2015).

1.1 Human-Nature separation or integration

The question of whether people are considered part of nature, or separate from it, runs throughout the issue of human relations with nature in conservation. It forms the basis for what has been termed the ‘Great Conservation Debate’ between those in favour of community-based conservation and those advocating more ‘protectionist’ approaches, and has been identified by some as a key distinguisher between different conservation viewpoints (Buscher and Fletcher, 2020).

It is also a significant feature of recent discussions, including of the ‘Anthropocene’. The very concept of the Anthropocene suggests that, by definition, nowhere on Earth is ‘untouched’ by people (Malhi, 2017). For some, acceptance of this concept necessitates an acceptance that ‘humans’ must take on a stewardship role for the Earth, whether they like it or not (Ellis, 2012); for others, the concept signals a warning, and a need to reduce human involvement in Earth systems (Maris, 2015; Wilson, 2016). Human-nature integration and separation has also been a feature of debate about rewilding. The prospect of withdrawing human ‘management’ or ‘control’ of ‘nature’ is one reason why rewilding captivates many people (Monbiot, 2013); but is simultaneously a reason it is considered by others to be unwelcome or risky (Nogués-Bravo et al., 2016; Krauß and Olwig, 2018). The question of human-nature integration is present throughout the themes discussed below.

1.2 Equilibrium and Dynamism

Much conservation debate has historically focused on the extent to which conservation should preserve existing ecosystems through human management, versus allowing ecological processes to bring change (Adams, 2003). Merchant (2015) argues that Western conservation is founded on a dichotomy that dates back to ancient Greece and Rome, in which two different conceptions of ‘nature’ exist. The first, ‘Natura naturans,’ is the present participle to mean nature ‘naturing’, creating, or ‘doing what nature does’. The second, ‘Natura naturata,’ is the feminine past participle to mean nature that has already been made or created. The implication is that the first is active, dynamic and unpredictable; the second is passive, stable and in equilibrium (Merchant, 2015).

This dichotomy persists. In England, the 20th century origins of the modern conservation movement recognised that landscapes had for millennia been shaped by human activity, with conservation consequently tending to involve active management to maintain a particular landscape or system
Adams (2003) argues that nature reserves may have initially been defined because of their perceived ‘wildness’ or ‘naturalness’, but once established they tended to be managed in order to keep nature within fixed boundaries.

Central to this discussion has been the idea of ecological equilibrium, particularly the notion of ‘climactic climax’ (Ellenberg, 1988). Under this theory, if left to its own devices vegetation would progress through stages of succession until it reached its natural, stable, climax – such as oak woodland. This was later refined to account for a wider variety of different ecosystems, but equilibrium was nevertheless inherent. Under this approach, ecosystems were viewed as mechanical, predictable and stable things. The job of the conservationist, therefore, was to keep them running in a continuous, unchanging way:

“Human action could upset the delicate working of the machine; but, fortunately, the ecologist could diagnose the problem and (potentially, at least) work out how to put the balance right. Ecological science could therefore be used to generate technocratic recipes for managing nature.”

(Adams 2003, p.224)

Equilibrium thinking dominated Western ecology throughout much of the 20th century and Jepson (2016a) argues that it shaped the design of European conservation institutions and their plans, such as the Convention on Biological Diversity and the European Union Birds and Habitats Directives. These, he says, were designed to shape policy and practice in particular ways, focusing specifically on the composition or species assemblages of ecosystems:

“Key elements include: species and habitat classifications, flagship and emblematic species and landscapes, a network of managed reserves, conventions, directives supporting legally binding action plans and targets... and third-sector organizations that co-produce these attributes and mobilize public interest and engagement in their expressions” (Jepson 2016a, p.119).

Increasingly however, the idea of equilibrium and stability of ecosystems has been challenged, especially the idea of climactic climax (Vera, 2002). Within the discipline of ecology there is now broad acceptance of dynamism within ecosystems, in which organisms interact with each other in complex and changing ways that mean ecosystems do not stay still (Adams, 2003). This moves away from a static, equilibrium oriented approach that focuses on an ecosystem’s composition, towards a focus on processes that recognises continual dynamism and change (Corlett, 2016).
Despite this shift, conservation approaches that attempt to deliver particular, stable ecosystem compositions remain highly significant. In many cases, conservationists may be constrained by the legal and institutional frameworks governing conservation, with ‘success’ often based on simplified, species-based metrics – as can be the case for Sites of Special Scientific Interest, for example (Jepson, 2016b). The extent to which dynamism is accepted by conservationists also depends significantly on the characteristics of particular sites. Some sites with particularly rare characteristics, such as endangered species, may be managed more tightly to ensure those characteristics are protected, whereas other sites may be managed to enable greater dynamism (Moorhouse and Sandom, 2015; Hobbs, Higgs and Hall, 2017). A coastal wetland supporting rare species, for example, will not be considered appropriate for the re-establishment of dynamic processes if coastal development means there is nowhere for it to move and it would consequently be destroyed. The type and extent of historical human management of a place, and the scale of a site, also influence the degree of dynamism that is considered desirable, with larger sites or networks within landscapes offering greater potential to enable ‘natural’ processes to take their course (Lawton et al., 2010).

The concepts of equilibrium and dynamism are therefore highly relevant for ongoing discussion of human relations with nature in conservation. They relate to questions about how much intervention, management and control people should attempt to exert over ecosystems, how to do this, and how it should vary from place to place. The ways these questions are answered are likely to be highly context-specific.

1.3 Novel ecosystems and non-native species

The issues of human/nature integration, and equilibrium and dynamism, underpin the question of whether conservation should focus on a past archetype or whether ‘novel’ ecosystems with no historical precedent also have conservation value (Wiens and Hobbs, 2015).

This is a particularly relevant question in relation to the ‘Anthropocene’. Arguments that ecosystems should be managed based on their existing value and future potential, rather than their past form (Kareiva, Marvier and Lalasz, 2012; Perring, Standish and Hobbs, 2013; Perring, Audet and Lamb, 2014; Hobbs, Higgs and Hall, 2017) have been sharply criticised by those wary of altering conservation paradigms to accommodate novel systems. Murcia et al (2014), for example, argue that the idea of novel ecosystems has been influencing practitioners and policymakers without receiving sufficient scientific scrutiny.

Within the discussion of novel ecosystems, a particularly polarising issue is that of ‘non-native’ species. The prevention or eradication of ‘alien’ and ‘invasive’ species has been a staple part of
‘traditional’ conservation (Adams, 2003) and there remains strong opposition to the idea that ‘invasive’ species can ‘settle down’ with native species into stable new systems (Wilson 2016), with much concern based on the level of uncertainty and risk associated with accepting new types of organism into an established system (Simberloff, 2011). These concerns reflect a broader adherence to ideas of equilibrium outlined above. However, the move towards valuing novel ecosystems challenges this position, arguing that it is both impractical and illogical to try to preserve ecosystems as they are, or return them to an arbitrary point in history (Thomas 2017; Davis 2011). These issues are playing out in interesting ways in different places, including by intersecting with questions of biosecurity (O’Mahony, 2020).

There are therefore some complex, interlocking questions in relation to the issues of novel ecosystems and non-native species, and the broader issue of human-nature relations in conservation. On one hand, a focus on a past archetype could imply a desired reduction in the integration of people and nature, by returning the environment to a state before human impacts took place, or removing species that are present because of human activity. On the other hand, the restoration of a past archetype could require significant human intervention to achieve. In contrast, the relinquishing of human ‘control’ could potentially result in the acceptance of novel ecosystems, simply by allowing them to develop in an unguided way from their present state, but would necessitate an acceptance that human changes to nature are irreversible.

1.4 The location of nature – ‘human’ and ‘wild’ landscapes

The question of where conservation is focused is a further feature of this discourse. Reflecting the ‘Great Conservation Debate’ (Buscher and Fletcher, 2020), it includes discussion of whether to attempt conservation across human landscapes and within human spaces like cities or farmland, or to concentrate on areas specifically reserved for nature (Marr, Howley and Burns, 2016). It further includes discussion of the idea of ‘wilderness’. The ways these issues are manifested varies within and between places.

Adams (2003) identifies two apparently different historical conceptions of conservation: the ‘conservation of wildness’ and ‘conservation as control’. The conservation of wildness relates to the value of ‘wild’, ‘non-human’, or unaltered nature and naturalness. This approach, which has found resonance globally, has historically been prevalent in North America, where NGOs including the Sierra Club and the Nature Conservancy were founded on the concept of nature as possessing an intrinsic value, separate from human society or use (Cronon, 1996; Wiens and Hobbs, 2015).
Adams’ second category – ‘conservation as control’ – represents the technical practice of the control of nature. This includes techniques of habitat management and bureaucratic, planning approaches that seek to define and then control what forms of non-human nature ought to exist. This is the type of conservation traditionally practised in the UK and much of the rest of Europe. Its roots lie in conservation approaches that sought to preserve historical, human-made landscapes, with a recognition that the landscape of the UK has been shaped by people for thousands of years (Hobbs, Higgs and Hall, 2017).

Related to these themes is the concept of ‘land sparing’ versus ‘land sharing’ (Marr, Howley and Burns, 2016). These terms encapsulate the broad question of whether conservation should prioritise sites specifically designated for wildlife, or whether it should attempt to protect biodiversity everywhere. The argument for sparing tends to emphasise that by intensifying human activity, especially farming, in productive places, it leaves other areas of land available to be preserved for wildlife. Those advocating sharing, in contrast, argue that focusing only on designated sites creates ecological isolation and that it is important to support biodiversity wherever it is found (Fischer et al., 2014).

These questions about the location of conservation focus are a further element of the issue of human-nature relations. They contribute to the complexity of whether, how (and where) people seek to manage or control nature in particular ways.

1.5 Natural capital

The conceptualisation of nature as a category of resource in a capitalist economy is a further area of contention in conservation debate. Key terms include ‘natural capital’ and ‘ecosystem services’, sometimes referred to as ‘economistic conservation’ (Wilshusen, 2019). Such approaches are central features of the UK’s 25YEP (UK Government, 2018), but have received significant criticism (Mayer, 2018).

Discussion in this area has included analysing the deployment of a ‘compositionalist’ approach to conservation that has demarcated, ordered and valued nature through concepts like species lists and biodiversity (Wynne-Jones, Clancy, et al., 2020). Consequently, as Lorimer puts it:

‘Biodiversity conservation is informed by a desire for panoptic knowledge, comprehensive accounting, and efficient, instrumental management. It seeks to rationalise existing practice through the development and dissemination of standardised criteria and modes of interacting’ (Lorimer, 2015:59).
Approaches to assessing natural capital vary. In the UK, formal approaches are produced by the government’s Natural Capital Committee, based on identifying the primary ‘natural assets’ in the environment, the ‘ecosystem services’ they provide, and the benefits derived from them by humans (Natural Capital Committee, 2017). In principle the value of these assets, services and benefits can then be determined in the context of an agreed vision – quantified either in monetary form or another metric.

Proponents of the use of ‘natural capital’ contend that the term increases the understanding of value contained within the environment, puts it on a par with ‘economic’ and ‘social’ capital, and reduces the likelihood that its value will be discounted in favour of other considerations (Kareiva, 2014; UK Government, 2018). In contrast, critics fear the framing and quantification of the environment in terms relating explicitly to human benefits undermines the inherent value of nature, oversimplifies environmental systems and risks ‘nature’ losing out through transferability with other forms of capital (Maris, 2015).

These issues are central to discussion of human-nature relations in conservation. As well as the undermining of nature’s inherent value, critiques of natural capital approaches highlight their homogenising effect – marginalising alternative ways of conceiving nature and implicitly embedding a particular, capitalist form of human relations with nature (Büscher and Fletcher, 2019). How the concept of natural capital is approached is consequently fundamental to the expression of human-nature relations generally.

1.6 Restoration and species introductions

Within the broad field of conservation, the particular discipline of restoration ecology has traditionally sought to restore ecosystems in places severely degraded by human activity (Wiens and Hobbs, 2015), sometimes including the translocation of species from elsewhere (Seddon et al. 2014). In general, a key aspect of restoration is that it has a historical reference point or baseline, and it seeks to re-establish, in some form, something that existed in the past (Adams, 2003). However, in light of discussion of novel ecosystems this has been challenged, including in the context of ‘rewilding’. While some rewilding proposals emphasise past, even pre-human baselines (Donlan, 2005; Donlan et al., 2006), others have chosen to focus on ‘novel contemporary ecosystems’ (Lorimer et al., 2015) or to drop the prefix ‘re-’ – the term ‘wilding’ recognising the impossibility of recreating the past (Tree, 2018).

Within restoration ecology and rewilding, a key point of contention is the introduction, reintroduction or translocation of species (Seddon et al., 2014). Within this broad group of
approaches organisms may be released within their perceived historical indigenous range, either to reinforce an existing population or to reintroduce a species where it is locally extinct. Alternatively, species may also be released outside of their known indigenous range through assisted colonisation, and/or be translocated with the intention of restoring specific ecosystem functions (Seddon et al., 2014). This could involve the reintroduction of a single species, such as the wolf into Yellowstone national park in the United States (Ripple and Beschta, 2012), or beavers in Europe (Halley and Rosell, 2002). In other cases, such as in Oostvaardersplassen in the Netherlands, the approach is a more extensive establishment of ecological dynamics between animals and vegetation, through the introduction of large grazers or the abandonment or passive management of land (Lorimer et al., 2015). Increasingly, and particularly in the context of rewilding, species introductions have been proposed with the intention of creating ‘trophic cascades’, in which the presence of species re-establishes dormant ecological processes and significantly affect the environment more widely (Svenning et al., 2015; Law et al., 2017).

Debate on species introductions has included discussion of appropriate use of conservation resources – for example whether money spent on the reintroduction of species could be better spent on protecting existing species. Disagreement has also centred on issues of risk and uncertainty in relation to species introductions – particularly regarding proposed introductions of species that have been absent for a long time. For example, Smith (2005) argues that rewilding proposals to re-establish ancient ecological processes through the introduction of species overlook the environmental changes – particularly climate change – that have taken place over the past thousands of years.

Implicit within these discussions are questions about whether and how conservationists should be intervening in ecological processes through the restoration of systems and/or the (re)introduction of species.

1.7 Rewilding

In recent years, many of the long-standing discussions about conservation approaches discussed above have coalesced around the emergence of ‘rewilding’ into public and political discourse. The concept of rewilding lacks a single definition (Jørgensen, 2015) but is most commonly defined by an emphasis on ‘natural processes’ to increase biodiversity (Lorimer et al., 2015; Moorhouse and Sandom, 2015), with greater potential for ‘non-human autonomy’ (Prior and Ward, 2016). In this sense, rewilding may represent a further move away from a composition-based approach to conservation and towards dynamic ecological processes – not just an acceptance of dynamism, but the deliberate ‘relinquishment of direct human management of the wild organisms or ecological
processes in question’ (Prior & Ward 2016, p.133). Similarly, Schnitzler (2014) argues for rewilding in Europe by putting areas outside of human control, with ‘wild’ defined as ‘autonomous, uncontrolled and self-organising.’

The idea of rewilding builds on longstanding ecological restoration approaches that have attempted to re-establish previously existing ecosystems (Corlett, 2016) and has foregrounded the question of whether to base conservation efforts on a past baseline (Lorimer et al., 2015). This includes discussion of whether to attempt to recreate past archetypes (and if so from when), with some rewilding approaches advocating systems based on a pre-human Pleistocene baseline (Donlan et al., 2006). This intersects with the question of human technological intervention in conservation through its emphasis on species (re)introductions (Svenning et al., 2015). It includes, in some cases, arguments for the ‘de-extinction’ of extinct species using genetic technologies (Shapiro, 2015; Adams, 2017). In other cases, however, the emphasis is on the innovation of ‘future natures’ that may draw on past processes but create something new (Lorimer et al., 2015; Wynne-Jones, Strouts, et al., 2020). Indeed, for many the defining feature of rewilding is its promotion of non-human autonomy (Prior and Ward, 2016) and, therefore, its acceptance that nature cannot be directed to produce a past archetype but will innovate novel ecosystems (Wynne-Jones, Strouts, et al., 2020).

Rewilding discussions therefore encapsulate many of the pre-existing debates outlined above. Some rewilding proposals emphasise re-establishing past systems (Donlan et al., 2006), others promote novelty (Buck, 2015); some propose ‘sparing’ wilderness areas (Kopnina, 2016), others wilder human landscapes (Lorimer, 2015); some involve the deliberate incorporation of non-native ‘analogue’ species (Griffiths et al., 2011), others do not; some call for extensive intervention through species introductions (Svenning et al., 2015), others for passive management or land abandonment (Navarro and Pereira, 2012).

The concept of rewilding has wielded significant power in the UK and elsewhere. It has been suggested as an answer to a global decline in biodiversity (Donlan et al., 2006; Seddon et al., 2014; Svenning et al., 2015) and a range of other issues including flood management and rural economic growth (Moorhouse and Sandom, 2015). In the UK it has gained significant public support through campaigners including George Monbiot (Monbiot 2013). To its critics, however, rewilding is at best as a distraction from the conservation of endangered species, and at worst a dangerous experiment with potentially negative consequences for biodiversity (Caro and Sherman, 2009; Oliveira-Santos and Fernandez, 2010; Nogués-Bravo et al., 2016; Rubenstein and Rubenstein, 2016). It has been criticised for being ‘anti-farmer’ (Krauß and Olwig, 2018) and has been pilloried as ‘the Left’s latest crazy, dangerous idea’ (Kite, 2016).
The discussion around rewilding is emblematic of disagreements about conservation generally, and it is clear that there may be significant differences of opinion not just within society at large, but within the conservation community itself. This reflects some of the key issues around human-nature relations in conservation, including whether people are enabling or resisting dynamism in ecosystems; the extent to which activities are guided by particular points in time; and the extent to which the location of nature is controlled.

1.8 The ‘Anthropocene’

The concept of the ‘Anthropocene’ has interacted with these pre-existing debates in conservation. In the past decade, a rejection of ‘pristine’ nature has manifested in the proposition of the entire Earth as a ‘Rambunctious Garden’ (Marris, 2011), capturing the idea that the Anthropocene heralds the arrival of a ‘post-wild’ world tended by humans. Similarly, so-called ‘new conservation’ proposes greater and more intentional integration of people and nature, especially through poverty alleviation and including partnership with the private sector (Kareiva, Marvier and Lalasz, 2012).

In opposition to this, framings of conservation that promote the separation of people and nature, often based on parks and protected areas, have responded to the idea of the Anthropocene with ‘neo-protectionism’ (Buscher and Fletcher, 2020). Rather than embracing the Anthropocene and increasing the integration of humans and nature, ‘neo-protectionist’ viewpoints have called for the expansion of ‘wild’ nature (Schnitzler, 2014), the proposition that ‘half the Earth’ be protected (Kopnina, 2016; Wilson, 2016) and the rejection of ‘new conservation’ approaches (Soulé, 2013; Doak et al., 2014). This has interesting implications for discussion of human management or control of nature – both advocating for ‘wild’ nature by resisting greater human-nature integration, while also promoting greater control by designating the location of nature through ‘fortress conservation’.

Debate about the concept of the Anthropocene is itself founded on discussion of whether ‘humans’ and ‘nature’ are separated or integrated. For some, the idea of the Anthropocene has strengthened calls for humanity to ‘love your monsters’ and take responsibility for the impacts of human technology (Latour, 2012). Reflecting a modernist Anthropocene narrative that scientists should ‘fix’ environmental problems using new, green technology (Bonneuil, 2015), some positions contend that “…[t]he Earth we have inherited is now our responsibility… Our powers may yet exceed our ability to manage them, but there is no alternative except to shoulder the mantle of planetary stewardship’ (Ellis, 2012). In conservation, such positions are reflected in proposals including the use of genetic technology to preserve or even resurrect species (Redford et al., 2014).
Other framings are more cautious, but retain the narrative that the Anthropocene heralds the ‘end of nature’ with the potential for a ‘good’ Anthropocene managed by people (Bonneuil, 2015). Such positions explore the Anthropocene’s potential to deliver a change in how people interact with their environments, including viewing it through the prism of smaller, more diverse and localised connections with nature (Bennett et al., 2016). These visions tend to see ‘multiple Anthropocenes’ that are shaped by politics and place, rather than a totalising, simplified concept (Preston, 2015). Such views also seek to avoid what they perceive as potentially ‘dangerous experimentalism’ of some ‘eco-modernist’ ideas (for example, geo-engineering), opting instead to interpret the Anthropocene as an invitation to develop an ‘ethic of care’ for the Earth (Pellizzoni, 2016).

Alternatively, some positions reject the idea of a ‘good’ Anthropocene as a contradiction in terms (Hamilton, 2015; Rockstrom, 2015; Stirling, 2015), with the concept itself critiqued for depoliticising human-environment interaction and preventing smaller, localised, plural interactions with the environment. These positions hold that the Anthropocene tends to present humanity falsely as a singular entity, and its influence on the Earth as a detached fact to be dealt with. This implicitly promotes technical ‘fixes’ like geoengineering which are presented as if they are objective, disinterested science but are in reality deeply political (Stengers, 2015).

The rejection of the Anthropocene concept is frequently shared by more ‘protectionist’ conservationist framings, which view it as part of a general hubris that over-estimates human ability to control non-human processes, calling instead for a reining back of human impact on nature (Buscher and Fletcher, 2020). Here, these views intersect with the so-called ‘eco-catastrophist’ narrative that frames the Anthropocene as the result of humanity’s transgression of planetary boundaries, resulting in the need for lower human consumption (Bonneuil, 2015).

The concept of the ‘Anthropocene’ also intersects with discussion of whether conservation is oriented towards the future or the past. With the ‘Anthropocene’ concept founded, in part, on an irreversible change in ecological conditions (Malhi, 2017), the acceptance of the ‘Anthropocene’ would suggest an associated acceptance of future-facing, novel ecosystems.

Discussion of the ‘Anthropocene’ therefore represents an amalgamation of many issues relevant to human-nature relations in conservation. As a concept, it is bringing increased relevance to questions of whether people should attempt to manage or control nature, and if so how. It is also bringing renewed focus to longstanding questions about human integration with nature, including what ‘wild’ means and whether it exists.
2. Research Questions

The issues summarised here make it clear that how human relations with nature are conceived is central to how conservation is approached. This area is also highly complex, multi-dimensional and context specific. This complexity risks being obscured if it is analysed and discussed at a general or global level.

For England, the issues outlined above translate into a complex range of questions for those involved in conservation. These include the extent to which conservation focuses on the composition of species assemblages versus ecological processes; how that is measured, including the potential use of ‘natural capital’ approaches; the extent to which protected sites are emphasised versus whole landscapes, and whether a ‘sparing’ or ‘sharing’ approach is taken; the extent of emphasis on historical baselines versus potential novel ecosystems; and, cross-cutting it all, the extent and type of human intervention, management or control of nature, especially in relation to rewilding.

Despite valuable existing analysis of the values underpinning different perspectives (Sandbrook et al., 2011; Holmes, Sandbrook and Fisher, 2017; Wynne-Jones, Clancy, et al., 2020) there remains a need for further clarity about the different kinds of approaches to conservation in England. With such complex issues in play, a lack of clarity has contributed to confusion and conflicts between different viewpoints, particularly in relation to rewilding, and impedes discussion and decision-making for conservation in England. It is important to find ways to understand the variation in perspectives and practice not just between different places, but within particular places.

Further, important elements of these discussions require more understanding, especially in relation to how issues of human management and control in conservation are understood. Important analysis on these issues already exists, including exploration of how the expression of non-human autonomy can be contingent and contradictory (Ward and Prior, 2020) and the intersection of rewilding, control and biosecurity (O’Mahony, 2020).

However, existing research has not fully unpacked the different potential dimensions of how conservationists may attempt control of nature, especially for the specific context of England. Existing research has not related the particular discourse and practice of conservation in England to the ‘Anthropocene’ concept. Nor has it charted the implications of this for conservation policy in England, and in return for international discussions about ‘conservation in the Anthropocene’. In addressing these issues, it is also important to be mindful of common ground as well as conflict. While disagreement clearly exists in conservation, it is possible to overstate the extent of that
disagreement. In relation to global conservation debate, Sandbrook et al (2019) suggest that there are significant areas of consensus as well as polarisation, but does not specifically address the extent to which this is reflected in particular contexts like England.

Drawing on the issues outlined above, this thesis relates discussion of human relations with nature to the specific context of England, by asking the following central research question:

*How and why are the discourse and practice of nature conservation in England framed and enacted in the ways they are, and with what implications?*

This central question comprises the following sub-questions:

*How, why and with what implications are different framings of nature conservation expressed in the discourse of conservation in England?*

*How, why and with what implications are different practices of nature conservation in England enacted in the ways they are?*

*What are the implications of the discourse and practice of nature conservation in England for conservation in the ‘Anthropocene’?*

By asking and answering these questions, this thesis seeks to contribute knowledge and understanding by: providing a rich, in-depth understanding of conservation discourse and practice in England that is useful for important policy decisions in England itself, especially by uncovering complexity and heterogeneity within this particular context; presenting this analysis so that it can be compared with research in other contexts, contributing to understanding of differences between different places; and providing analysis based on real-world examples of conservation, that can be used to inform discussion of global approaches to conservation, including in relation to the idea of the ‘Anthropocene’.

3. Methodologies

The research questions outlined above recognise the importance of both the discourse and practice of conservation in England. Answering them therefore requires both discourse analysis and analysis of practice. The following sections describe how these are approached in this thesis.
3.1 Discourse analysis

In seeking to understand complex issues, it is possible to identify ‘discourses’ as the means by which people develop shared meanings and principles. This allows them to hold coherent conversations and construct knowledge, even about highly complex environmental issues:

“A discourse is a shared way of apprehending the world. Embedded in language, it enables those who subscribe to it to interpret bits of information and put them together into coherent stories or accounts. Discourses construct meanings and relationships, helping define common sense and legitimate knowledge” (Dryzek 2013:9)

As Dryzek notes, if discourses did not have shared terms and principles it would be difficult to discuss anything, as participants would constantly have to return to first principles.

However, discourses also constrain conversation by defining, and necessarily limiting, the scope of discussion. This means that how ‘reality’ is perceived, including the reality of human relations with nature, is not ontologically singular with only one reality able to be claimed as ‘the truth’. Reality is rather formed by a relational web of ‘associations’ between people and things (Latour, 2005) in which language forms a constituent part (Wood and Kroger, 2000).

With this perspective, the world consists of a complex ‘tangle’ of associations between human and non-human elements (de Hoop and Arora, 2017). How ‘reality’ is understood will depend on the interactions between different human and non-human actors, and the language used to describe them. Consequently, multiple different ‘realities’ are possible depending on the prevailing conditions (Mol, 2003; Hajer and Versteeg, 2005). In the construction of different realities, language not only enables people to say things, it is also central to being and doing things because saying, being and doing mutually construct and reinforce each other in multiple ways (Dryzek, 2013; Gee, 2014). Language does not simply communicate an earlier, independent reality, but rather plays its part in constructing reality.

This brings the further recognition that certain ‘realities’ receive greater support than others (Wilshusen, 2019). The operation of political power may control the language, construction, interpretation – and therefore associated actions – of environmental issues (Leach, Scoones and Stirling, 2010; Dryzek, 2013).

‘Discourse analysis’ (Hajer, 2005; Gee, 2014) therefore enables the identification of different perspectives, and an understanding of which language and ideas are most active and influential (Hajer and Versteeg, 2005).
One approach that is used to enable discourse analysis is Q Method – a technique that originated in psychology (Stephenson, 1935). It is a ‘quali-quantitative’ methodology that asks participants to sort a set of statements according to how closely they agree or disagree with them. The method then analyses these ‘sorts’ using factor analysis to distinguish common subjective positions on an issue (Watts and Stenner, 2012). Q Method has been used extensively in relation to human-environmental interaction (Cairns, 2012; Stevenson, 2015; Holmes, Sandbrook and Fisher, 2017; Zabala, Sandbrook and Mukherjee, 2018).

For the research presented in this thesis, 30 participants were interviewed to provide a wide range of opinion across conservation in England. To maintain a focus on the discourse of conservation, all selected participants self-identified as conservationists. The viewpoints of others including farmers, while highly significant, were beyond the scope of this study. Some of the participants in the Q study were also subjects of the analysis of practice, described below. The further details of how Q method was applied are outlined in the relevant paper.

3.2 Analysis of practice

The research questions outlined for this thesis also recognise the significance of a detailed understanding of conservation practice. To answer them, this research uses ethnographic method.

Ethnography originated as a method of gaining deeper understanding of (generally non-Western) cultures. In recent decades it has been used to describe a range of different approaches, but most commonly studies that emphasise direct observation as a primary source of information (Gobo and Marciniak, 2016). It is often used in ‘case-study’ research of a system that has spatial and/or temporal boundaries and its own particular physical and cultural context (Burawoy, 1998; Gobo and Marciniak, 2016). It tends to emphasise the continuous presence of the researcher in the field, though has also been applied to shorter timeframes, as for example in ‘event ethnography’ (Duffy, 2014).

The rich context and detail provided by ethnographic studies can contribute knowledge that can only be achieved through the researcher’s experiences. This also offers the opportunity to test, and potentially falsify, existing theories and beliefs (Flyvbjerg, 2006).

The research presented here utilised ‘participant observation’ involving the active taking part in activities (Gobo and Marciniak, 2016). This approach enabled access to the case study through participation in conservation activities. It was also an appropriate approach for experiencing how ‘insiders’ of the projects studied perceived and acted on characteristics that were attributed to them by themselves and others – most relevantly for this study, the extent of human management and
attempted control of nature in conservation practice. Participant observation also provided an open-ended, flexible methodology. It enabled adjustment based on emerging ideas, lending itself to extended, qualitative research grounded in practice (Jorgensen, 1989).

This research aligns with what has been described as ‘reflexive science’ (Burawoy, 1998). While some case studies may utilise ‘positivist’ methodologies that attempt to identify theoretical knowledge or generalisable facts, reflexive case studies emphasise knowledge that explicitly embraces context, providing complex, detailed and specific understanding (Burawoy, 1998). This provides knowledge that is unobtainable through ‘positive’ science. It also, however, potentially increases the risk that the researcher is influenced by the operation of power within the case study. To counter this, ethnographic researchers are encouraged to be explicit about the power dynamics involved, and to be reflexive about their own position in the inquiry.

The acceptance of subjectivity is important in all forms of scientific inquiry, and particularly significant in ethnography, but it is nevertheless possible to attempt detached and objective analysis (Buscatto, 2016). This requires reflexivity to attempt to understand and account for the researcher’s own position in relation to the subject of study. It includes accepting that ‘truth’ will never be complete and that information may be contradictory or change over time; and continually analysing the social conditions of research, particularly the relationships between actors and between the actors and researcher, to help interpret the situations being experienced (Buscatto, 2016).

For the research presented in this thesis, I spent more than 40 days at two study sites – Sussex Wildlife Trust’s Old Lodge and the rewilding project at Knepp Estate – across more than a year between July 2017 and October 2018.

These two sites were chosen because they represent different aspects of conservation practice in England. Old Lodge is a formally designated nature reserve holding SSSI status and within the High Weald Area of Outstanding Natural Beauty – resulting in a range of institutional stakeholders including Natural England. Though formally privately owned, it is managed by the Sussex Wildlife Trust and is openly accessible to the public. The majority of practical work at the site is undertaken by local community volunteers working for free. Old Lodge has been designated as an SSSI for its heathland habitat and species and is management reflects the value placed on specific ecological indicators, as described in more detail below. It is a comparatively small site, at 73ha.

In contrast, Knepp has no formal conservation designation. It was, until 2000, an intensive arable and dairy farm and has benefitted in the past from a range of subsidies, including Higher Level Stewardship. As a result of its past as an intensive farm it was not initially considered to have
significant ecological value and its management approach reflects a desire to restore biodiversity rather than protect what existed. In contrast to Old Lodge, Knepp is privately managed. It has been owned by the Burrell family for several generations and was inherited by the current owners in 1987. This private ownership, combined with the lack of formal designation, results in fewer formal stakeholders and greater management flexibility. Knepp is also on a different scale from Old Lodge, at 1400ha. It comprises a low weald landscape of predominantly clay, and includes a section of the River Adur.

Though both in Sussex, therefore, Knepp and Old Lodge represent, between them, different dimensions of the makeup of conservation in England – in designation, ownership, approaches, landscapes and scale. The two sites between them also represent both conservation that is managed as a public site by community volunteers, and conservation that is managed privately as a family concern. While no two sites could capture every aspect of conservation in England, these differences make it possible to draw broader conclusions from Old Lodge and Knepp that are applicable to England as a whole.

At Old Lodge I joined a weekly volunteer group, accompanied employees of the Sussex Wildlife Trust to other sites, and conducted key informant interviews. At Knepp, I took part in multiple ecological surveys, meetings, conferences, tours and a safari. I was granted access to Knepp staff and participants, whom I accompanied, observed and interviewed. I spent several days accompanying the stockmen responsible for the animals. I complemented fieldwork at both sites with further interviews and review of written sources.

During fieldwork I kept extensive written field notes. These were recorded on site where possible, or if not at the end of the same day. During and after fieldwork, I consolidated field notes into more extensive accounts and reflections which were used for later analysis and assessment of findings. In considering and analysing ethnographic findings, I attempted both to explore pre-existing questions and be open to potentially novel themes. Following Flyvbjerg (2006), I used my findings to test general assertions made about the relationship between rewilding and ‘traditional’ conservation, based on the key themes and research questions outlined above. In doing so, I also consciously stayed alert to the potential for issues to emerge that were not represented in pre-existing analysis.

3.3 Combining discourse and practice

A central feature of the approach taken in this thesis is the importance of analysing both discourse and practice, to gain as holistic an understanding as possible of conservation in England. As outlined above, language forms a constituent part of reality, by helping to shape a particular version of reality
from a complex tangle of associations. Consequently, it is important to analyse discourse to help understand how different realities are constructed. Similarly, analysis of practice is necessary to explore not only how issues are conceived and discussed, but how they are enacted. Hence, the importance of analysis of practice through ethnography, to assess the expression of ideas and language in conservation behaviours. These two analytical approaches therefore complement each other, enabling the presentation of how conservation in England is constructed across different social dimensions. This combined approach is particularly relevant to the third paper.

In combining analysis of discourse and practice, this thesis draws on insights provided by the concept of ‘performativity’ (Austin, 1962). The idea of performativity builds on the recognition that reality is not ontologically singular, and that multiple different constructed versions of reality are possible. Performativity has been used in different ways (Derrida, 1972; Dolan, 2001), including in relation to human interaction with nature (Overend and Lorimer, 2018). For Callon (2007), statements are ‘performative’ when they contribute to adjusting the reality of the world to fit what they describe – with a theoretical world view gradually becoming ‘actualised’ by the theory describing it (Callon, 2007). Consequently, discourse contributes to the constitution of the object under study through repeated interactions. This conception of performativity has been applied to conservation, for example to describe how discourse based on the language of economics has been performative in shaping ‘economistic’ conservation governance frameworks (Wilshusen, 2019).

This approach recognises that not all theories are equally performative. Performativity involves questions about how and why certain ‘realities’ receive greater support than others (Wilshusen, 2019), including the operation of political power. The point at which ideas expressed in language begin to be reflected in the reality to which they refer, has been described as a theory fulfilling its ‘conditions of felicity’ (Callon, 2007).

By combining analysis of conservation discourse with observation of conservation practice, therefore, it becomes possible to assess which concepts and theories are finding their ‘conditions of felicity’ in practice. This understanding informed the choice to analyse both discourse and practice in this thesis.

4. Paper Summaries

The three papers comprising this thesis seek to answer each of the research sub-questions and, collectively, the central research question.

These findings clarify conservation discourse in England. In particular, they identify differing attitudes to human management and attempted control of nature. They reveal resistance to natural capital approaches, driven by different factors depending on the perspective, and apparent acceptance of rewilding. This analysis provides guidance for conservation leaders seeking to implement strategies like the UK’s 25 Year Environment Plan, including suggestions for mitigating contentious features of natural capital approaches. By clarifying conservationists’ different perspectives, this paper aims to answer the question of how, why and with what implications different framings of nature are expressed in the discourse of conservation in England.

The second paper, ‘Everything under control? Comparing Knepp Estate rewilding project with ‘traditional’ nature conservation,’ has been published in PLOS ONE. It addresses questions about human relations with nature in practice with a specific exploration of the concept of ‘control’ in conservation. The paper identifies multiple dimensions of control (‘stabilisation’, ‘location’, ‘prediction’ and ‘outputs’), illustrating that control is not a simple, linear concept. It compares two ethnographic case studies: the Sussex Wildlife Trust’s Old Lodge nature reserve; and Knepp Estate, one of the most influential rewilding projects in the UK. It uses them to test assertions made about control in ‘traditional’ conservation and ‘rewilding’.

The paper outlines how Old Lodge does not exert precise control in all respects, but involves elements of uncertainty and negotiation. It describes how Knepp’s model of rewilding reduces control in some dimensions but potentially increases it in others. It concludes that, while Knepp’s rewilding does represent a significant conceptual departure from ‘traditional’ conservation, it should not be characterised as an approach that reduces control in a simplistic way.

Based on this analysis, the paper argues that reduction of control does not necessarily underpin the concept of rewilding. Rather, there is interplay between different control dimensions that combine to form multiple ‘configurations of control.’ Using a framework of ‘configurations of control’, debate about the place of rewilding in conservation can become less polarised, and instead involve an active
discussion of what configuration of control is desired. This analysis has the potential to increase understanding of rewilding projects as part of plural conservation strategies, in the UK and globally. It attempts to answer the research question of how, why and with what implications different practices of conservation in England are enacted in the ways they are.

The third paper builds on the first two, and has not yet been submitted to a journal. It combines the discourse analysis in paper one with the analysis of practice in paper two, and analyses both against different visions of conservation in the ‘Anthropocene,’ focusing specifically on the issue of ‘human management of nature.’ Using the results of the Q method survey, it identifies that despite significant differences between the four perspectives, they all broadly accept that some form of human influence in England is ubiquitous. They also all accept that it is not possible to recreate ecosystems from the past, even if some perspectives would like to. Similarly, drawing on the comparative ethnographies, it identifies that practice at both Knepp and Old Lodge is consistent with future-facing, dynamic, human-oriented conservation.

These findings contribute to discussion of conservation in the ‘Anthropocene’. They suggest that, in the specific context of Sussex in England, the forms of conservation that are emerging do not align with what some have called ‘mainstream conservation’ that separates humans from nature. Rather, the discourse and practice analysed here have more in common with so-called ‘new conservation’. They also have some aspects in common with potentially more radical, future-facing visions of conservation. These visions include nuanced perspectives on how people connect with nature, with a historically embedded sense of place. This paper seeks to answer the research question about the implications of the discourse and practice of conservation in England for conservation in the ‘Anthropocene’.

In combination, the three papers presented in this thesis make a substantial contribution to understanding the discourse and practice of human relations with nature in English conservation. They answer the central research question of how and why the discourse and practice of conservation in England is framed and enacted in the ways that it is. In doing so, the papers provide significantly enhanced understanding of the heterogeneity within conservation discourse and practice in England.

The thesis also outlines the implications of these findings. In particular it highlights that, despite the characterisation of conservation debates as polarised, these papers reveal significant common ground. Paper one illustrates that the four perspectives share significant characteristics, including a tolerance of diverse opinions. Paper two illustrates that even two conservation sites that ostensibly operate at opposite ends of a spectrum of control actually have much in common in practice. More
broadly, by recasting the concept of ‘control’ in conservation to be a multi-dimensional framework of ‘configurations of control’, paper two offers a way to reduce the binary polarisation of ‘high-control’ and ‘low-control’ visions of conservation. Finally, paper three shows how the discourse and practice analysed in the previous papers reveal visions of conservation that are consistent with nuanced, future-facing, human-oriented conservation.

Taken together, these papers illustrate the importance of understanding localised, context-specific examples in discussion of modern conservation. They also highlight the possibility that new ways for ‘humans’ to relate to ‘nature’ are emerging in different contexts around the world.

This paper has been published in the Journal of Land Use Policy, vol 104, May 2021, https://doi.org/10.1016/j.landusepol.2021.105362

Abstract

Nature conservation is being challenged to address a global biodiversity crisis yet, despite areas of consensus, there remain disagreements over issues including natural capital approaches and rewilding. Delivering effective conservation strategies requires understanding clearly the different perspectives within conservation debates, how much they actually disagree, and why. This is particularly true in England, where new conservation policy frameworks are proposed following the UK’s exit from the European Union. These include the 25 Year Environment Plan and associated Agriculture Act and Environment Bill, which commit to a ‘natural capital’ approach to conservation.

This study uses Q Method to identify four contrasting perspectives among conservationists in England: 1. Management of Changing Nature, which emphasises formalised conservation management but accepts novelty and change; 2. Innovation in Nature, which favours a high degree of experimentalism, dynamism and uncertainty; 3. Protection of Threatened Nature, which prioritises preserving endangered ecosystems in their existing form; and 4. Re-establishment of Wild Nature, which favours separating humans from nature and ‘letting nature go’.

These findings clarify conservation discourse in England. In particular, they reveal resistance to natural capital approaches and apparent acceptance of rewilding. This analysis provides guidance for conservation leaders seeking to implement strategies like the UK’s 25 Year Environment Plan, including suggestions for mitigating contentious features of natural capital approaches. By clarifying conservationists’ different perspectives, this paper aims to increase understanding and common ground between them, as they pursue their shared goal of addressing the biodiversity crisis.
1. Introduction

Warnings of a biodiversity crisis are increasingly stark (Ngo et al., 2019; Sánchez-Bayo and Wyckhuys, 2019). Biodiversity loss is identified as an example that humans – or rather, the modern ways of life of particular human societies – have transgressed ‘planetary boundaries’ (Rockström et al., 2009), and pushed the Earth into a new geological epoch, the ‘Anthropocene’ (Crutzen and Stoermer, 2000; Malhi, 2017). In response, conservation is being challenged to adopt different approaches for protecting and restoring biodiversity (Marris, 2011; Lorimer, 2015; Thomas, 2017), including discussion of more anthropocentric ‘new conservation’ (Kareiva, Marvier and Lalasz, 2012; Holmes, Sandbrook and Fisher, 2017) and more dynamic ‘rewilding’ (Jørgensen, 2015).

Debate about how to approach conservation is of particular interest in the UK. First, the UK has been described as one of the most nature-depleted countries in the world, with a historical decline in the distribution and abundance of species that has continued throughout the past 50 years (Hayhow et al., 2019). It is therefore a context in which conservationists are grappling with competing visions of preserving existing landscapes versus restoring or rewilding dynamic systems and processes. This debate, and the approaches being undertaken in England, have relevance for how industrialised countries contribute to addressing the global biodiversity crisis.

Second, the UK’s decision to exit the European Union (EU) is leading to fundamental changes for conservation. It is bringing an overhaul of the regime of subsidies paid to farmers and landowners for managing the landscape, with the introduction of payment for ‘public goods’ and the use of ‘natural capital’ approaches (Bateman and Balmford, 2018; Sandom et al., 2019). This makes understanding different perspectives particularly important at this moment, and relevant to countries considering similar approaches. As environment policy is devolved to the different nations of the UK, this paper deals specifically with England.

2. Background

2.1 Conservation discourse

Debate about how to approach conservation comprises several longstanding issues. Particularly significant is the discussion of ecological dynamism, specifically whether conservation should be aiming to preserve existing species assemblages and ecosystems, or to enable dynamic ecological processes including species changes (Adams, 2003; Wiens and Hobbs, 2015). This includes the role of formalised ‘management’ of ecosystems. Established conservation frameworks relevant to the UK,
including the EU Habitats and Birds Directives, have been criticised for embedding a ‘compositionalist’ approach to ecosystems that prevents a shift towards greater ecological dynamism (Jepson, 2016b).

This debate extends to the kinds of ecosystem that exist in different locations. Critics have argued that frameworks such as the UK’s National Vegetation Classification, used as a guide for selecting Sites of Special Scientific Interest (Joint Nature Conservation Committee, 2020), involve a misplaced desire to stipulate which types of nature ‘ought’ to be in particular places (Adams, 2003). The issue of location relates to how much emphasis is placed on protected areas versus wider landscapes. It is linked to debate around ‘sparing or sharing’ and how to establish connected networks of protected areas at a landscape scale (Marr, Howley and Burns, 2016; Sandbrook et al., 2019).

Further, discussion includes the issue of time-depth and baselines: whether conservation should be based on a past archetype or whether ‘novel ecosystems’ have conservation value (Perring et al., 2014; Hobbs et al., 2017) – with fears they represent a worrying shift in conservation paradigms, particularly by accepting ‘non-native’ species (Murcia et al., 2014). This relates to debate about the role of species (re)introductions and translocations (Seddon et al., 2014). (Re)introductions designed to trigger ecological processes through ‘trophic cascades’ (Svenning et al., 2015) have provoked particular concern about the uncertainty and risk they present, especially if non-native species are involved (Smith, 2005; Simberloff, 2011). Similar concerns exist regarding the use of genetic technology to conserve or even resurrect species (Frankham, 2010; Redford et al., 2014).

The role of capitalism in conservation, especially the concept of ‘natural capital,’ also attracts controversy. Proponents of natural capital argue it increases understanding of the environment’s value, reducing the likelihood that nature will be ignored (Kareiva, 2014). Critics fear quantification of the environment oversimplifies ecosystems and undermines nature’s inherent, unmeasurable value that cannot be converted into other forms of capital (Maris, 2015; Mayer, 2018). This forms part of wider concerns over the role of capitalism in ‘new conservation’ (Sandbrook et al., 2019).

Several of these issues combine in debates about ‘rewilding.’ Though lacking simple definition, rewilding broadly emphasises ‘natural processes’ (Lorimer et al., 2015) and ‘non-human autonomy’ (Prior and Ward, 2016) but with many proposals incorporating active intervention through species (re)introductions (Donlan et al., 2006). Rewilding debate includes discussion of reducing ‘management’ through formal frameworks and targets (Jepson, 2016b). It also includes whether to aim for the creation of something similar to a past system or to emphasise greater degrees of novelty (Wynne-Jones, Strouts, et al., 2020). Opposition to rewilding comes both from those
opposed to introductions (Rubenstein and Rubenstein, 2016) and those opposed to withdrawal of human management of land (Höchtl, Lehringer and Konold, 2005; Krauß and Olwig, 2018).

2.2 The conservation policy landscape in England


The approaches set out in the 25YEP build on previous analysis of UK conservation. Particularly significant in England was the 2010 report ‘Making Space for Nature’ (Lawton et al., 2010), and related Natural Environment White Paper in 2011 (DEFRA, 2011). Lawton et al argued that existing wildlife sites in England are not in a condition to respond to climate change and changing land use. The report emphasised the significance of ‘ecosystem services’ for economic prosperity, and identified the need to ‘rebuild nature’ across whole landscapes. It coined the phrase ‘Bigger, Better, More and Joined’ (BBMJ) to describe the need to link England’s wildlife sites into a ‘coherent and resilient ecological network’ (Lawton et al. 2010: viii).

This call to rebuild and connect wildlife sites met with broad agreement within the conservation community in the UK and internationally (Isaac et al., 2018). However, though influential, Lawton et al’s recommendations remain largely unrealised, with a lack of agreement about how to deliver a ‘resilient ecological network’ (Isaac et al., 2018).

It is this challenge that the 25YEP and related legislation seek to overcome (UK Government, 2018). Significantly, they commit to a natural capital approach as an underpinning logic for conservation strategy. This involves mapping ‘natural assets,’ the ‘ecosystem services’ they provide and the economic and social benefits that derive from them, overseen at national level by a Natural Capital Committee (Natural Capital Committee, 2020). The Agriculture Act 2020 includes Environmental Land Management schemes (ELMS) that will deliver payments for public goods, including increased biodiversity (House of Commons Library, 2020), while the proposed Environment Bill will include the principle of ‘Biodiversity Net Gain’ and the delivery of Local Nature Recovery Strategies (DEFRA, 2019). This will include the use of a ‘Biodiversity Metric 2.0’ tool to set baselines and predict the effects of different management or development decisions (DEFRA, 2020c).

The 25YEP therefore strongly emphasises metrics. It includes targets to restore 75% of terrestrial and freshwater sites to ‘favourable condition’, create or restore 500,000 hectares of ‘wildlife-rich habitat outside the protected site network’ and plant 180,000 hectares of woodland by 2042 (UK
The plan commits to developing ‘a full set of natural capital accounts for the UK’ (UK Government, 2018:133).

The plan is positive about (re)introductions, proposing ‘opportunities to re-introduce species that we have lost from our countryside’ (UK Government, 2018:56-57). It also highlights the importance of tackling ‘invasive non-native species’. The plan commits to reviewing Areas of Outstanding Natural Beauty (AONBs) and National Parks to identify ‘how to enhance them for the 21st century’ – suggesting a recognition of historic landscapes but also an openness to reassessing their management (UK Government, 2018:66).

These policy changes are profound, and will shape conservation in England for a generation and more. At this time, it is vital to understand the different perspectives of English conservationists. Yet despite significant existing analysis (Sandbrook et al., 2011, 2019; Holmes, Sandbrook and Fisher, 2017) further clarity of subjective views is needed to enable constructive discussion and decision-making.

This paper uses Q Method to identify different perspectives among English conservationists. It discusses its findings in relation to future conservation approaches, highlighting which issues are polarising and which provide consensus. This analysis can improve the prospect of finding common ground for strategies that seek to protect and restore biodiversity, particularly in England.

3. Methodology

The analysis presented here is founded on the understanding that human actions, including in conservation, are underpinned by subjective viewpoints that materially affect behaviour and practice (Dryzek, 2013).

Scientific debate typically contains multiple different ‘framings’ (Rein and Schon, 1996; Chong and Druckman, 2007; Daviter, 2007). Framing theory recognises that an issue can be perceived from many different perspectives that influence how people think, talk and act (Chong and Druckman, 2007).

Framings provide the constituent parts of scientific ‘discourses’ – the means by which people can develop shared meanings and principles, contributing to coherent conversations and the construction of legitimate knowledge and ‘common sense’, even about highly complex issues (Dryzek 2013).
Discourses therefore enable conversation by providing shared terms and principles, but also constrain it by defining, and necessarily limiting, the scope of discussion. Analysing discourse rests on the understanding that language not only enables people to say things, it also interacts with and contributes to constructing the ‘being’ and ‘doing’ of things (Gee, 2014). Discourse analysis therefore has an ‘anti essentialist ontology’ that accepts the idea of multiple, socially constructed realities and rejects the notion of a single, immutable ‘truth’ (Hajer and Versteeg, 2005).

Framings, discourses and language are subject to political power. Those with power may control the language, construction, interpretation – and therefore associated actions – of environmental issues (Dryzek, 2013), as has been argued is the case with the performance of ‘economistic’ approaches to conservation (Wilshusen, 2019).

On this basis, this paper seeks to identify and understand the subjective perspectives that are present within conservation in England, and to look for common ground between them.

Q Method is commonly used to enable discourse analysis. It was developed in psychology (Stephenson, 1935), and uses ‘factor analysis’ to distinguish subjective positions (Watts and Stenner, 2012) including in relation to human interaction with the environment (Cairns, 2012; Stevenson, 2015; Zabala, Sandbrook and Mukherjee, 2018). Q Method does not provide information about the frequency of a viewpoint, but rather greater clarity of the range of views that exist. Unlike ‘R’ method statistical analysis, which isolates variables looking for generalisable conclusions, Q method strives for a holistic and in-depth interpretation of particular subjective perspectives (Watts and Stenner, 2012). This focus on understanding entire points of view, rather than abstracted individual variables, makes Q a valuable method for discourse analysis.

Q participants are asked to sort a set of statements according to how closely they agree or disagree with them. The factor analysis then examines the relationship between different participants’ ‘sorts.’ Consequently, Q method does not require a large number of participants to deliver significant variation (Sinnett and Sardo, 2020). However, it is important to strive for as wide a range of opinion as possible on the issues being studied.

The present study involved 30 participants, selected by the author to reflect a wide range of opinion on the key issues within conservation discourse outlined above. It also included identifying participants from a wide range of different conservation backgrounds, to reflect the diversity of a sector that includes scientists, policy analysts, site managers, farmers and rewilding practitioners. Consequently, the 30 participants included: professional field conservationists, volunteers, conservation farmers and academic ecologists; working for NGOs, universities, government agencies
and as consultants; representing variations of ‘traditional’ conservation and rewilding across different locations and scales. This range of participants can be seen in Table 1, which displays the background of each participant. They comprised 11 women and 19 men – potentially a slight over-representation of men (63%) compared with the approximate sector composition (56%) (Walker, 2017). They ranged in age from 34 to 78, and in experience from four years to several decades.

To identify this group, initial participants were approached based on their public views on key conservation issues outlined above, and their respective backgrounds in the conservation community. Further participants were identified based on suggestions from this first group, particularly of individuals whose views and backgrounds differed from their own.

As a result, the participant group can be considered to represent a broad range of different perspectives, sufficient to provide a broadly representative body of opinion within the conservation community.

All participants were based in England. Therefore, although in many cases they were involved in conservation elsewhere, and influenced by wider conservation discourse, it is for England that this study holds greatest relevance. Participants were provided with an information sheet, signed a consent form, and responses were anonymised according to approved ethics procedure.

An initial ‘concourse’ of 153 statements was drawn from a review of academic conservation and ecology literature, media material, government/legislative documents, website content and ‘grey’ literature of English conservation projects. These statements were structured to reflect key themes emerging in the literature, especially those relevant to the current policy landscape in England, specifically: ecological dynamism, location/‘sparring or sharing,’ different baselines in time, (re)introductions, the role of scientific prediction, ‘natural capital,’ and attitudes to rewilding. Using this structured approach, the concourse was reduced to a ‘Q set’ of 66 statements that captured the contrasting opinions on either side of each of these issues (Watts and Stenner, 2012). The final set of statements is shown in Table 2. Each participant organised the 66 statements on a grid, according to how closely they represented their opinions (Figure 1).
The study was conducted between August and December 2018. Participants sorted the statements while considering the following question:

‘How should those involved in nature conservation approach conservation in the UK?’

To assist with the holistic interpretation of different perspectives each participant was interviewed, enabling an in-depth understanding of each person’s viewpoint. 29 of the 30 participants were interviewed in person, sorting statements using prepared cards. One participant was emailed the statements and sorted them remotely, followed by a telephone interview.

The completed sorts were analysed using PQMethod 2.35 (Schmolck, 2014). Extracted ‘factors’ represent intercorrelation within a matrix. Similarly-organised sorts have high correlation and ‘factor rotation’ can identify a set of different perspectives around which individual viewpoints converge (Watts and Stenner, 2012).

An initial five, unrotated factors were extracted using centroid analysis. This produced eigenvalues for each factor of: 7.4331, 3.4799, 1.2682, 0.2637 and 1.1819. As the eigenvalue of the fourth factor was less than 1.00, it did not meet the ‘Kaiser-Guttmann’ criterion for significance (Watts and Stenner, 2012) and was discarded. The other four factors were rotated using varimax rotation, and
‘significantly loading sorts’ were identified for each (Table 1). These sorts indicate participants whose elicited perspectives associate strongly with a particular perspective. The threshold for a significantly loading sort was calculated as $2.58 \times \left(1 \div \sqrt{\text{no. of items in Q set}}\right)$ (Brown, 1980). For this study, with 66 statements, this threshold value is given as: $2.58 \times \left(1 \div \sqrt{66}\right) = 0.32$.

Sorts significantly loading on each factor (greater than 0.32 on one factor alone) are marked with ‘X’ and highlighted in Table 1. There were 11 ‘confounded’ sorts that loaded on more than one factor. One ‘non-significant’ sort did not load on any factor.

Q Method does not dictate any single way to identify whether a factor represents a significant perspective, but it is usual to combine statistical significance with contextual knowledge emerging from interviews (Watts and Stenner, 2012). Elements that are commonly used to guide whether a factor is significant include the ‘Kaiser-Guttman’ criterion in which the eigenvalue should be greater than 1.00; and whether at least two participant sorts significantly load on each factor (in this case, greater than 0.32).

In this study, the four factors each met the Kaiser-Guttman criterion, and were associated with at least two significantly-loading sorts. Key features of these factors were also consistent with emerging themes from interviews. These four factors were therefore considered representative of significant perspectives. The ‘Factor Array’ (Table 2) displays each factor as an idealised sort. The corresponding scores for each statement (-6 to +6) illustrate each perspective’s attitude to each statement.

4. Results and Discussion

Based on the analysis outlined above, four factors (or perspectives) can be distinguished and named:

- Perspective 1: Management of Changing Nature
- Perspective 2: Innovation in Nature
- Perspective 3: Protection of Threatened Nature
- Perspective 4: Re-establishment of Wild Nature

Each perspective represents a shared framing rather than any individual participant’s view; individuals will inevitably have elements in common with more than one perspective. Each participant’s degree of association with each perspective is shown in Table 1.
Table 1: Participants and how their Q sorts load on the four rotated factors

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>-0.0029</td>
<td>0.2815</td>
<td>0.1865</td>
<td>0.2636</td>
</tr>
<tr>
<td>F2</td>
<td>0.5341</td>
<td>0.3157</td>
<td>0.2729</td>
<td>0.1823</td>
</tr>
<tr>
<td>G1</td>
<td>0.0177</td>
<td>0.7066 X</td>
<td>0.0057</td>
<td>0.1400</td>
</tr>
<tr>
<td>G2</td>
<td>0.1934</td>
<td>0.2277</td>
<td>0.5620 X</td>
<td>0.1165</td>
</tr>
<tr>
<td>G3</td>
<td>0.0644</td>
<td>-0.0367 X</td>
<td>0.7179 X</td>
<td>-0.0177</td>
</tr>
<tr>
<td>G4</td>
<td>0.6559</td>
<td>0.3471</td>
<td>0.0949</td>
<td>0.0225</td>
</tr>
<tr>
<td>I1</td>
<td>0.0559</td>
<td>0.1580</td>
<td>-0.1734</td>
<td>0.6028 X X</td>
</tr>
<tr>
<td>I2</td>
<td>0.1569</td>
<td>-0.2479 X</td>
<td>0.6405 X X</td>
<td>0.1509</td>
</tr>
<tr>
<td>N1</td>
<td>0.6072 X X</td>
<td>0.1199</td>
<td>0.1910</td>
<td>-0.0005</td>
</tr>
<tr>
<td>N2</td>
<td>0.0793</td>
<td>-0.1947 X</td>
<td>0.5268 X X</td>
<td>0.0459</td>
</tr>
<tr>
<td>N3</td>
<td>0.4377</td>
<td>0.2358</td>
<td>0.5969</td>
<td>-0.0458</td>
</tr>
<tr>
<td>N4</td>
<td>0.6435 X X</td>
<td>0.2221</td>
<td>0.2933</td>
<td>0.0372</td>
</tr>
<tr>
<td>N5</td>
<td>0.4209</td>
<td>0.4158</td>
<td>-0.0548</td>
<td>0.3141</td>
</tr>
<tr>
<td>N6</td>
<td>0.0951</td>
<td>0.0153</td>
<td>0.5590 X X</td>
<td>0.0632</td>
</tr>
<tr>
<td>N7</td>
<td>0.5102 X X</td>
<td>0.0335</td>
<td>0.2988</td>
<td>0.0672</td>
</tr>
<tr>
<td>N8</td>
<td>0.0673</td>
<td>0.3410 X X</td>
<td>0.3011</td>
<td>-0.0305</td>
</tr>
<tr>
<td>N9</td>
<td>0.3258</td>
<td>-0.0690</td>
<td>-0.3604</td>
<td>0.2803</td>
</tr>
<tr>
<td>R1</td>
<td>0.0881</td>
<td>0.7751 X X</td>
<td>0.1040</td>
<td>0.2182</td>
</tr>
<tr>
<td>R2</td>
<td>0.3449</td>
<td>0.7319</td>
<td>0.1313</td>
<td>0.0871</td>
</tr>
<tr>
<td>R3</td>
<td>0.2042</td>
<td>0.5592</td>
<td>0.4488</td>
<td>0.0033</td>
</tr>
<tr>
<td>R4</td>
<td>0.1443</td>
<td>0.1831</td>
<td>0.1684</td>
<td>0.7017 X X</td>
</tr>
<tr>
<td>R5</td>
<td>0.1263</td>
<td>0.7448 X X</td>
<td>-0.2727</td>
<td>0.2820</td>
</tr>
<tr>
<td>U1</td>
<td>0.3156</td>
<td>0.4788</td>
<td>0.2492</td>
<td>0.3299</td>
</tr>
<tr>
<td>U2</td>
<td>0.4329</td>
<td>0.4727</td>
<td>-0.0294</td>
<td>-0.0344</td>
</tr>
<tr>
<td>U3</td>
<td>0.4020 X X</td>
<td>-0.0531 X</td>
<td>0.1565</td>
<td>0.2350</td>
</tr>
<tr>
<td>U4</td>
<td>0.1775</td>
<td>0.7671 X X</td>
<td>-0.1677</td>
<td>0.1016</td>
</tr>
<tr>
<td>U5</td>
<td>0.4168</td>
<td>0.1148</td>
<td>0.2493</td>
<td>0.3681</td>
</tr>
<tr>
<td>U6</td>
<td>0.4325</td>
<td>0.4012</td>
<td>-0.0918</td>
<td>0.1387</td>
</tr>
<tr>
<td>V1</td>
<td>0.0860</td>
<td>0.3899 X X</td>
<td>-0.0723</td>
<td>-0.0280</td>
</tr>
<tr>
<td>V2</td>
<td>0.2646</td>
<td>0.0718</td>
<td>0.5111 X X</td>
<td>-0.1150</td>
</tr>
</tbody>
</table>

| % Explained Variance | 11 | 16 | 12 | 5 |

Q Sort Codes: F = Conservation Farmers; G = Government Agency Employees; I = Independent Conservationists; N = NGO Employees; R = Rewilding Project Employees; U = University Employees; V = Volunteer Conservationists

Significantly loading sorts (> 0.32 on a single factor) marked ‘X’ and shaded in colour

Each perspective is interpreted with the aim of understanding it holistically. This requires identifying not only statements in which each perspective invests most strongly, but also statements seen
differently between perspectives. This can be significant in identifying ‘soft’ agreements or disagreements that are important in interpreting a view. For example, if a perspective ranks a statement at zero that is ranked at -6 or -5 by all the other perspectives, the zero ranking may indicate openness to a position that is outright rejected by other perspectives – potentially an important finding (Watts and Stenner, 2012).

Here, Factor Array values are shown in brackets, for example: (38 = +6). This shows in simplified form the perspective’s level of agreement (+) or disagreement (-) with each statement (Table 2).

4.1 Perspective 1 – Management of Changing Nature

Four participants associated with this perspective: N1, N4, N7 and U3.

‘Management of Changing Nature’ strongly supports formalised conservation management – legislation, targets and indicators – to protect nature and measure success (66 = +6; 51 = +4; 17 = -4). It supports approaches that measure species abundance and diversity, but also supports using natural processes and is against dictating exactly what form nature should take (35 = +5; 39 = +4). It is quite confident about intervening using processes (57 = -2) but comparatively sceptical of (re)introductions, captive breeding and rewilding (1 = -4; 8 = +2; 12 = -3; 61 = -3).

This perspective is future-oriented. It is completely against approaches that attempt to recreate the past (3 = -6; 14 = -6; 33 = -1), comfortable with novel ecosystems (37 = +3; 40 = 0; 64 = +4; 27 = -5) and against maintaining species’ genetic ‘purity’ (55 = -5). Its future-orientation extends to managing for climate change by protecting ‘refugia’ (54 = +3).

This perspective strongly favours human-nature integration: rejecting the separation of nature from people, believing it important that society sees the value of nature to human wellbeing, and advocating support for nature beyond ‘protected areas’ (10 = +5; 42 = +5; 50 = +4; 18 = -5). This includes relative positivity towards ‘natural capital’ (25 = -2).

4.2 Perspective 2 – Innovation in Nature

Six participants associated with this perspective: G1, N8, R1, R5, U4 and V1.

‘Innovation in Nature’ emphasises ecological processes, strongly favouring autonomous, dynamic, unpredictable ecosystems. It strongly believes innovative approaches are needed to halt biodiversity loss (56 = +6), and is in favour of (re)establishing processes and (re)introducing a range of species to achieve this (8 = +6; 9 = +5; 16 = +4; 33 = +1; 61 = +2). It favours assisting or restoring species, not just protecting what is already there (1 = +2; 65 = +1; 24 = -4), strongly favours rewilding, and does
not see rewilding as conflicting with ‘traditional’ approaches (47 = -5; 62 = +3). More than other perspectives, it is open to genetic technology (26 = 0; 49 = -1).

This perspective is future-oriented, completely opposed to fixing distribution of existing, historical landscapes, and positive about novel ecosystems (48 = -6; 7 = -5; 20 = +3; 46 = +1). It also dislikes the idea of conservationists pre-determining the outcomes of their actions (48 = -6; 34 = +5; 43 = +5; 39 = +4; 29 = -4). It favours ‘sharing’ human spaces with nature over ‘sparing’ designated places and is wary of conservation based around protected sites or species (5 = -3; 42 = +2; 21 = 0; 44 = -1).

It is comfortable with uncertainty, strongly favours approaches with unknown outcomes, and supports ‘daring’ species introductions (53 = -6; 52 = +4; 59 = +3; 60 = +2). Like other perspectives it has no great faith in scientific predictions, but takes a more experimental attitude and opposes over-reliance on scientific evidence or predictions before acting (28 = -1; 11 = -2).

This perspective is sceptical of ‘management’ through targets and indicators, believing these can impair a holistic approach (17 = +4; 66 = -1; 51 = +1). This is perhaps because such frameworks limit radical intervention, and/or the perception that indicators emphasise species over processes. It favours intervening to establish dynamic processes, then letting those processes take their course, rather than ongoing micro-management of ecosystems (63 = -5).

It is open to ‘natural capital’, but less concerned about wider society’s attitude to nature (25 = -1; 10 = -2) – the only perspective not to value statement 38 as +6.

4.3 Perspective 3 – Protection of Threatened Nature

Six participants associated with this perspective: G2, G3, I2, N2, N6 and V2.

‘Protection of Threatened Nature’ has an acute sense of human impact on nature, emphasises nature’s intrinsic value, and dislikes viewing nature in human terms as ‘natural capital’ (38 = +6; 4 = -2). However, it is (painfully) aware that ecosystems change over time, accepting human influence in the UK is everywhere (30 = +5; 19 = -6).

In response, this perspective believes people must manage nature, and that ‘letting nature go’ would result in less biodiversity (13 = +4; 63 = +2). It does not think existing frameworks are a barrier to conservation or that more innovative approaches are necessary, strongly disliking the idea of ‘wild nature’ separate from humans (41 = -2; 56 = -1; 6 = -5; 18 = -5; 34 = -4). Unlike Perspectives 1 and 2, it emphasises preserving what exists now, including historical human landscapes (48 = +4; 7 = +1). Correspondingly, it is sceptical of novel ecosystems (27 = 0; 37 = -1) and favours eradicating non-native species despite being pessimistic this is possible (58 = +3; 64 = +3).
This perspective focuses strongly on protecting species, particularly native species. It believes conservationists should manage habitats to benefit target species, and that any loss of species or ecosystems from the UK is negative, even if they are abundant elsewhere (44 = +6; 31 = +4; 15 = -3; 23 = -4). It favours protecting nature everywhere (42 = +5), but emphasises ‘sparing’ over ‘sharing’ (5 = +3). It focuses on protected sites with rare characteristics, including closely-managed small sites linked in networks (45 = +5; 36 = +2; 21 = +3). It is sceptical of process-based conservation (39 = -2).

This perspective strongly dislikes uncertainty and unknown outcomes (60 = -5; 59 = -3), particularly regarding ‘daring’ species introductions that might threaten existing species (24 = +2; 52 = -4; 43 = -3). Consistent with disliking perceived uncertainty, despite caring deeply about protecting species it strongly opposes using genetic technology to do it (26 = -6).

4.4 Perspective 4 – Re-establishment of Wild Nature

Two participants associated with this perspective: I1 and R4.

The defining characteristic of ‘Re-establishment of Wild Nature’ is a desire for nature unmanaged by humans, reflecting its intrinsic value (38 = +6; 6 = +5). This perspective strongly opposes attempted human control of ecological dynamism or maintaining human landscapes (43 = +5; 7 = -5). It strongly favours ‘letting nature go’, even if that means the UK losing established species or ecosystems (47 = -6; 63 = -5; 15 = +4; 23 = +2).

It rejects the idea that conservationists have no choice but to manage nature (13 = -4; 18 = +1), opposing human management even of rare or important habitats and species (31 = -4; 45 = -4). It dislikes site-based and species-based approaches, including protection of climate change refugia (32 = -4; 35 = -3; 54 = -2). It believes existing institutional and legal frameworks inhibit positive new approaches (41 = +4).

This perspective has an intense dislike of ‘natural capital’ (25 = +6), strong scepticism of genetic interference (49 = -6; 26 = -5), and comparatively weak support for protecting nature ‘wherever it is’ and in ‘human spaces’ (42 = +2; 50 = +2). Despite this, it broadly accepts that ‘the idea of nature untouched by people is impossible in the UK, because human influence is everywhere’ (30 = +1).

This perspective favours carnivore introductions but opposes large herbivore introductions (61 = +2; 9 = -3); perhaps reflecting concern that herbivore proxies represent a continuation of domestic livestock in the landscape, whereas carnivores like lynx are ‘wild’. It believes any human interventions need significant justification through evidence (11 = +5), does not believe ‘designing’ ecological processes using proxy species is possible, and thinks this may be too risky (57 = +3; 16 = -
3). It is, however, open to certain established intervention approaches, like captive breeding (12 = +1).

This perspective believes nature’s past state was preferable to its likely future (40 = -4) and is open to recreating pre-human systems (14 = +3). It is sceptical of novel ecosystems and non-native species (20 = -2; 37 = -1; 46 = -1) and open to maintaining species’ genetic ‘purity’ (55 = 0). Despite its emphasis on the past, however, it broadly accepts that ‘conservationists will never truly be able to recreate past ecosystems’ (2 = +1).

4.5 Areas of differentiation

Combining the statistical analysis with information from interviews, certain issues emerge as differentiators between the perspectives.

**Extent of management:** Perspective 1 strongly favours embedding targets in legislation, and identifying indicators for measurement. It rejects the idea that indicators can impede good conservation, and the idea of keeping nature separate from humans.

‘The legislation we have isn’t a barrier, it’s just not enough. There needs to be a government framework for anything to happen.’ (Participant N7)

Perspective 3, similarly, believes humans in the UK have no choice but to manage nature.

‘Here in the UK nature has tended to have evolved alongside humans. The idea of pulling out and leaving things to nature worries me.’ (Participant G3)

Perspective 2, in contrast, is highly sceptical of ongoing management and target-setting, and positive about ‘letting nature go’. This reflects a desire for holistic approaches to ecosystems, enthusiasm for innovation and comfort with uncertainty.

‘The setting of arbitrary targets, like the favourable condition of SSSIs, leads people to misrepresent the state of ecosystems. It’s not just not helpful, but profoundly, corruptingly unhelpful.’ (Participant G1)

Perspective 4 shares this scepticism of formalised management frameworks, stemming from its desire to remove human interference from nature.

‘I’m not a bean-counter; I’m not species-focused. I don’t mind if people want to manage some places closely, as long as you give me some space to have places that are wild. We’re too obsessed with landscapes that require our constant management.’ (Participant I1)
Interestingly, all four perspectives accept the need for some form of indicator, ranking statement 51 at +4, +1, +1 and +3 respectively. They differ, though, on whether indicators should be species-oriented, the role of ongoing management, and whether targets should be attached.

**Past-Future orientation:** One of Perspective 1’s strongest features is the rejection of recreating past ecosystems and an acceptance of novelty and change.

‘I don’t agree that we should reject novel ecosystems. We live in an Anthropogenic Age.’ (Participant N4)

Perspective 2 is similarly future-oriented, particularly disliking attempts to maintain historical human landscapes or fix ecosystems in their present state.

‘Fixing things as they are is simply not possible, especially with climate change.’

(Participant U4)

Perspective 3, however, is sceptical about novel ecosystems and positive about preserving what exists now.

‘It’s more important to spend resources on creating more conservation areas than, for example, introducing carnivores.’ (Participant I2)

Similarly, Perspective 4 is sceptical of novel ecosystems. It emphasises the deeper past, and unlike Perspective 3 is positive about pre-human ecosystems. Reacting to the proposition of protected areas that exclude people (18), a participant associated with Perspective 4 said:

‘The rational side of me says no, but I would absolutely love this. Human influence is everywhere; it’s really sad.’ (Participant R4)

**Natural capital:** The perspectives’ opinions on natural capital align with their positions on future and past orientation: future-oriented Perspectives 1 and 2 are broadly in favour and present/past-oriented Perspectives 3 and 4 opposed.

Perspective 2, despite being sceptical of formalised management frameworks, is nevertheless open to natural capital. This is likely because it aligns with this perspective’s position in favour of human-nature integration and a sense that the concept is useful.

‘I’m not keen on the capitalisation of nature, but it is necessary right now.’

(Participant R5)

Perspective 3, in contrast, is highly sceptical of natural capital despite strongly favouring ecosystem management. This is attributable to a strong belief in nature’s intrinsic, non-human, non-economic
value – which the natural capital concept is perceived to undermine. Perspective 4 is strongly opposed to natural capital, aligning with its (aspirational) rejection of human interference in nature generally.

Innovative intervention: Short-term intervention – distinct from longer-term management – is a further distinguishing issue. For Perspective 2, the need for new, interventionist approaches is a defining characteristic, particularly focused on (re)introductions to enable ecological processes. This differs from Perspective 2’s dislike of ‘management’, reflecting a desire to intervene, establish ecological processes, then allow those processes to take their own course.

‘We have no real understanding of what we’re doing, so we need to experiment, not just do something because it was done that way in the past.’ (Participant V1)

Perspective 1 is somewhat aligned with this – open to novelty and the use of processes, but more sceptical of species introductions. Perspective 3 dislikes innovative approaches, consistent with a general aversion to uncertainty and emphasis on protecting existing species.

‘I don’t think conservation is about being daring. You need to take all the risk out of it.’ (Participant N6)

Perspective 4 supports innovation insofar as it believes different, less interventionist conservation is needed. However, it has mixed feelings about interventions like species introductions, driven by a general desire to avoid human interference in nature.

Composition and processes: The prioritisation of processes is central to Perspective 2. Perspective 4 shares this emphasis, believing it acceptable to lose rare habitats and species as ecosystems change. This can be interpreted as a willingness to lose habitats that exist because of historical human management.

Perspective 1 is positive about processes, but also favours using species metrics to measure success. Rejecting the idea that species indicators can become problematic, one participant associated with Perspective 1 stated:

‘That would be the sign of a rubbish conservationist, to pick a species that didn’t tell you something about the overall health of the ecosystem.’

( Participant N4)

Perspective 3 strongly prioritises protecting species and habitats over dynamic processes. The interviews also revealed, however, that differences may reflect immediate considerations rather than fundamental disagreements. A participant associated with Perspective 3 stated:
‘I am philosophically in favour of dynamism and natural processes, but I’m in a situation here where I have to intervene to protect isolated populations. It’s worth the effort, but it ain’t natural.’ (Participant N6)

Figure 2: Key differences between the perspectives

4.6 Areas of common ground

Consistent with Sandbrook et al’s (2019) findings, there are significant areas of consensus between the perspectives.

Support for landscape-wide conservation: Notwithstanding differences in emphasis over the role of protected sites, all four perspectives support the idea of conservationists assisting nature ‘wherever it is, not just in protected areas’ (42) and that ‘it is important to make human spaces... wilder and/or more hospitable for nature’ (50). This relates to general consensus that ‘the idea of nature untouched by people is impossible in the UK, because human influence is everywhere’ (30). It reflects broad agreement that ‘small conservation sites should be managed to create networks in the wider landscape’ (21). These areas of agreement indicate that even Perspective 4, with its desire for wild nature, supports nature existing in human landscapes as well.
**In-principle acceptance of rewilding:** All four perspectives rejected the idea that ‘newer conservation ideas like rewilding represent a threat to hard-won legal protection for nature’ (47), generally accepting that ‘there is no major conflict between ‘traditional’ conservation and ‘rewilding’ because different approaches are needed in different places’ (62). There was broad support for reintroducing ‘keystone species, like beavers, as part of restoring ecological processes in the UK’ (8). Where participants identified conflict, it tended to be attributed to language and mutual misunderstanding, rather than inherently conflicting ideas. Given other differences between perspectives, particularly attitude to uncertainty and extent of management, it is possible that the acceptance of rewilding is attributable to the term’s ‘plasticity’ (Jørgensen, 2015), with tangible proposals still provoking conflict. Conceptually, however, it was not polarising.

**Little faith in predictions:** All four perspectives were decidedly lukewarm about the statement: ‘ecological science can usually quite accurately predict the effects of different conservation actions on ecosystems’ (28).

**Dislike of genetic technology:** Genetic technology, either to help endangered species survive (26) or bring back extinct species (49), was broadly rejected. Perspective 2 was most open to these propositions but did not prioritise them. Other perspectives opposed them strongly.

**Tolerance of a diversity of approaches:** Importantly, some of the differences between perspectives emerged as more about context and emphasis than fundamental disagreement. For example, interviews often revealed that differences over the desired extent of dynamism reflected participants’ immediate concerns, not fundamental beliefs – reflecting general agreement that ‘different approaches are needed in different places’ (62) and that nature should be protected landscape-wide. It is illustrated by Participant N6’s attitude to dynamic processes outlined above – philosophically in favour of dynamism but feeling unable to allow it at his own site. It is also shown in Participant I1’s statement: ‘I don’t mind if people want to manage some places closely, as long as you give me some space to have places that are wild.’

### 4.7 Characteristics of those holding different perspectives

Q studies are designed primarily to identify the range of different perspectives that exist within a community, not to enable definitive conclusions about what sort of person gravitates towards which of these perspectives. Nevertheless, it is possible to make some observations about how conservationists’ characteristics may influence their viewpoints.

One observation is that both ‘Innovation in Nature’ and ‘Re-establishment of Wild Nature’ have employees of rewilding projects aligned with them, whereas ‘Management of Changing Nature’ and...
‘Protection of Threatened Nature’ do not. This can potentially be interpreted as ‘Innovation in Nature’ being consistent with ‘active rewilding’ and ‘Re-establishment of Wild Nature’ with ‘passive rewilding.’ Three out of four of the participants aligned with ‘Management of Changing Nature’ are employed by conservation NGOs, suggesting that this perspective may be representative of mainstream modern, future-oriented conservation management. Two government agency employees aligned with ‘Protection of Threatened Nature’ suggesting that it may be representative of a more formalised, structured conservation perspective.

Age is also potentially relevant. The mean age of those aligning with ‘Management of Changing Nature’, ‘Innovation in Nature’ and ‘Re-establishment of Wild Nature’ was approximately 50 for each perspective, whereas for ‘Protection of Threatened Nature’ it was 59. This suggests that ‘Protection of Threatened Nature’ may represent an approach associated with older, more ‘traditional’ conservationists.

Finally, there are interesting observations about gender. Of the 19 male participants, 13 of them loaded significantly on one perspective and only seven were ‘confounded’ or ‘non-significant’. In contrast, of the 11 female participants only five loaded on a single perspective and six were ‘confounded’ – i.e. were significantly associated with more than one perspective. This suggests that female conservationists may potentially be more open to multiple different perspectives, or that specific analysis of framings among female conservationists would elicit different differentiating features – potentially a topic for future research. Of the five women who aligned significantly with a single perspective, three of them were associated with ‘Management of Changing Nature.’

Table 2: Factor array showing idealised sort patterns for each perspective

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dark Green signifies strong agreement</td>
<td><img src="https://example.com" alt="" /></td>
<td><img src="https://example.com" alt="Green" /></td>
<td><img src="https://example.com" alt="Green" /></td>
<td><img src="https://example.com" alt="" /></td>
</tr>
<tr>
<td>Dark Red signifies strong disagreement</td>
<td><img src="https://example.com" alt="Red" /></td>
<td><img src="https://example.com" alt="Red" /></td>
<td><img src="https://example.com" alt="Red" /></td>
<td><img src="https://example.com" alt="Red" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Reintroducing species to places where they are locally extinct should be an important element of conservation.</td>
<td><img src="https://example.com" alt="Green" /></td>
<td><img src="https://example.com" alt="Red" /></td>
<td><img src="https://example.com" alt="Green" /></td>
<td><img src="https://example.com" alt="Red" /></td>
</tr>
<tr>
<td>2. Conservationists will never truly be able to recreate past ecosystems.</td>
<td><img src="https://example.com" alt="Green" /></td>
<td><img src="https://example.com" alt="Red" /></td>
<td><img src="https://example.com" alt="Green" /></td>
<td><img src="https://example.com" alt="Green" /></td>
</tr>
</tbody>
</table>
3. Conservationists should aim to restore ecosystems based on what has existed in the past.  

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-6</td>
<td>-2</td>
<td>-1</td>
<td>-1</td>
<td></td>
</tr>
</tbody>
</table>

4. It is useful to think of conservation as the delivery of ‘ecosystem services’ or ‘natural capital’.  

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>-2</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

5. Protecting areas specifically designated for conservation (land-sparing) is more important than making other areas more hospitable for nature (land-sharing).  

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-2</td>
<td>-3</td>
<td>3</td>
<td>-1</td>
<td></td>
</tr>
</tbody>
</table>

6. Nature should be allowed to exist without human management.  

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>3</td>
<td>-5</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

7. Conservationists in the UK should focus on maintaining landscapes that have been shaped by humans for millennia.  

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-3</td>
<td>-5</td>
<td>1</td>
<td>-5</td>
<td></td>
</tr>
</tbody>
</table>

8. Conservationists should aim to reintroduce keystone species like beavers, as part of restoring ecological processes in the UK.  

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

9. Conservationists should aim to introduce more large herbivores, to re-establish ecological interaction between large herbivores and vegetation.  

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-1</td>
<td>5</td>
<td>2</td>
<td>-3</td>
<td></td>
</tr>
</tbody>
</table>

10. Society will only value nature if people can see how nature benefits human wellbeing.  

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>-2</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

11. Before doing anything, conservationists should gather extensive scientific evidence about the likely outcomes, so they can assess the potential risks and rewards of their actions.  

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-2</td>
<td>0</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

12. Captive breeding of endangered species should be an important part of conservation.  

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-3</td>
<td>1</td>
<td>-2</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

13. Human influence over ecosystems in the UK is so profound that conservationists have no choice but to accept responsibility for actively managing them.  

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-1</td>
<td>-3</td>
<td>4</td>
<td>-4</td>
<td></td>
</tr>
</tbody>
</table>

14. Conservationists should attempt to recreate ecosystems that existed before human impacts took place.  

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-6</td>
<td>-2</td>
<td>-2</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

15. Conservationists should allow ecosystems to change, for example through vegetation succession, even if it risks losing established species or ecosystem types.  

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>-3</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

16. Conservation should include introducing species to perform particular ecological functions.  

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>-1</td>
<td>-3</td>
<td></td>
</tr>
</tbody>
</table>

17. Identifying indicators of conservation success can be a problem, because conservationists prioritise those indicators rather than looking at the ecosystem as a whole.  

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-4</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

18. The UK should have protected areas with strict boundaries to keep people out and allow wild nature to exist.  

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-5</td>
<td>-4</td>
<td>-5</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

19. Ecosystems tend to remain balanced over time, kept in equilibrium through negative feedbacks.  

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-2</td>
<td>-2</td>
<td>-6</td>
<td>-1</td>
<td></td>
</tr>
</tbody>
</table>

20. Ecosystems that have no historical precedent can nevertheless have significant conservation value.  

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3</td>
<td>1</td>
<td>-2</td>
<td></td>
</tr>
</tbody>
</table>

21. Small conservation sites should be managed so as to create networks in the wider landscape.  

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
22. Introducing ‘proxy’ species to perform the function of extinct species risks getting new, unwanted ecological interactions. -3 -2 -1 0

23. It is acceptable to lose species from the UK, provided they are abundant elsewhere in the world. 0 -3 -4 2

24. Introducing or reintroducing species should take a back-seat to preserving the species that are already there. 0 -4 2 -2

25. Concepts like ‘ecosystem services’ and ‘natural capital’ risk undervaluing the inherent value of nature. -2 -1 1 6

26. Conservationists should explore the use of genetic technology to help endangered species survive. -1 0 -6 -5

27. The acceptance of ‘novel ecosystems’ lowers the bar for conservation by accepting negative human impacts on ecosystems. -5 -4 0 0

28. Ecological science can usually quite accurately predict the effects of different conservation actions on ecosystems. -1 -1 -1 0

29. It is important for conservationists to know what kind of ecosystem or landscape they want to see in a particular place. 2 -4 0 -1

30. The idea of nature untouched by people is impossible in the UK, because human influence is everywhere. 0 1 5 1

31. Conservationists should manage habitats so as to benefit particular species that have been identified as being important. 2 -3 4 -4

32. Conservationists should focus their resources on high-value protected areas. -1 -3 0 -4

33. Conservationists should research how ecological processes functioned in the past and try to establish similar processes for the future. -1 1 0 -1

34. Conservationists should give over more land for nature that is self-willed, self-organising or autonomous. -2 5 -4 2

35. Ultimately, the success of conservation is determined by the number and abundance of different species. 5 0 0 -3

36. Small nature reserves are important in their own right, not just as part of the wider landscape. 2 0 2 0

37. Some places are so significantly altered from their historical state that they should be managed based on their existing value and future potential, rather than their past form. 3 0 -1 -1

38. It is important that society learns to value nature for its own sake. 6 0 6 6

39. Conservationists should protect the processes of natural change, rather than dictating the exact form nature takes. 4 4 -2 2

40. The past state of the natural world is not necessarily preferable to the new state that is coming into existence. 0 0 -3 -4

41. Existing institutional and legal frameworks inhibit potentially positive, innovative or more dynamic conservation approaches. 0 2 -2 4
42. Conservationists should work to assist nature wherever it is, not just in protected areas.

43. Conservationists should embrace unpredictability and change in ecosystems, not try to control them.

44. Conservationists should prioritise the protection of native UK species.

45. It is important to protect sites with particularly rare characteristics by managing them closely.

46. Non-native species can be valuable components of an ecosystem.

47. Newer conservation ideas like rewilding represent a threat to hard-won legal protection for nature.

48. Conservationists should broadly try to preserve the existing distribution of habitats and landscapes in the UK.

49. Conservationists should explore the use of genetic technology to bring back extinct species (de-extinction).

50. It is important to make human spaces, like cities or productive farmland, wilder and/or more hospitable for nature.

51. It is important to identify indicators of conservation success, so that they can be measured.

52. Conservationists should be able to be more daring with the introduction or reintroduction of species.

53. Interfering with ecological processes, without a clear idea of the outcomes, is unacceptably risky.

54. It is important to identify and protect ‘refugia’ where species can survive the effects of climate change.

55. It is important to conserve species by maintaining their genetic purity and avoiding hybridisation.

56. Existing conservation approaches are failing to halt biodiversity loss in the UK, so more innovative approaches are needed.

57. Ecosystems are too complex and unpredictable for conservationists to ‘design’ particular ecological processes.

58. The eradication of non-native species should be an important part of conservation.

59. It is important to allow conservation approaches that may have unknown outcomes.

60. Conservationists should be able to undertake species introductions or reintroductions, even if they don’t know exactly what will happen.

61. Conservationists should aim to introduce large carnivores, like lynx, as part of re-establishing ecological processes in the UK.

62. There is no major conflict between ‘traditional’ conservation and ‘rewilding’ because different approaches are needed in different places.
More often than not, ‘letting nature go’ by withdrawing human involvement would result in less biodiversity in the UK. It is practically impossible to eradicate ‘alien’ species or ‘impure’ hybrids. Conservationists should undertake assisted colonisation or assisted migration of species, where necessary. Embedding conservation targets into legislation is a vital part of protecting nature.

5. Conclusions

Conflicting views within conservation are well-documented, but debate can be complex, confusing and unhelpful. This study provides greater clarity about what views exist among English conservationists and why they conflict, with implications for proposed conservation frameworks like the 25YEP, its related legislation and tools.

‘Management of Changing Nature’ represents a pragmatic, managerial approach – a mainstream strand of practical English conservation that, of the four perspectives, appears to have most in common with the principles of the 25YEP.

‘Innovation in Nature’ represents a more radical, experimental approach that tolerates greater uncertainty, consistent with ‘active rewilding’. It may conflict with the 25YEP through its dislike of ecosystem management and targets.

‘Protection of Threatened Nature’ represents a cautious approach, protecting the UK’s remaining nature by holding the line against destructive human activity and preserving existing landscapes, habitats and species. It may conflict with the 25YEP’s emphasis on natural capital, believing it undermines nature’s intrinsic value.

‘Re-establishment of Wild Nature’ represents an approach that emphasises letting nature exist unmolested by people, consistent with ‘passive rewilding’ or wilderness management. It conflicts with the 25YEP’s emphasis on natural capital and ecosystem management.

Those involved in conservation strategy must navigate this complex landscape of opinions if the shared goal of combatting a biodiversity crisis is to be achieved. This study provides some insights with implications for decision-making.
The use of natural capital approaches will meet resistance, but for contrasting reasons: Significant strands of English conservation are highly sceptical of the concept of natural capital. Perspective 3 strongly dislikes the idea of assessing the value of nature in capitalist terms. Perspective 4 shares this opinion, and additionally dislikes prescriptive or species-focused bureaucratic frameworks. In addition, Perspective 2, which favours natural capital, separately rejects bureaucratic ecosystem management and targets.

This presents a significant problem for strategies founded on natural capital approaches, and the use of tools like Biodiversity Metric 2.0. For approaches like the 25YEP and ELMS to succeed it is important to understand the different reasons for this opposition. To respect Perspectives 2 and 4, these strategies could avoid being overly prescriptive, particularly regarding targets; emphasise that measuring outcomes does not automatically mean ongoing human management; and set out how to measure and reward the delivery of ecological processes as well as species composition. To respect Perspectives 3 and 4, it is important to incorporate qualitative recognition of nature’s intrinsic, non-human value into any natural capital approach by including narrative and descriptive information and avoiding an overly ‘marketised’ system. Without such mitigation many conservationists will remain sceptical of natural capital approaches, a finding that is also relevant for other countries considering similar strategies.

The finding that not only do natural capital approaches and/or bureaucratic management provoke resistance, but also that there are different reasons for that opposition, has important implications for land use. In particular, it indicates that decision-makers may be required to incorporate a plurality of approaches within conservation strategies, and that the acceptance of different approaches is likely to vary by context. In some cases, highly ‘economistic’ approaches to environmental land management may be considered appropriate. In others, they may be rejected in favour of approaches that are less focused on metrics or the assessment of nature’s value to people. This suggests the need for a diverse mosaic of conservation land use in future. How this is enacted across different contexts, with the acceptance of different approaches varying from place to place, offers interesting potential for future research.

Attitudes to natural capital, innovation and future/past orientation, are complex and interlocking: More broadly, this study reveals new aspects of the debates about how humans should approach nature in the 21st century – relevant for discussion of ‘rewilding,’ the ‘Anthropocene’ and ‘new conservation’, particularly in industrialised countries. It finds an apparent correlation between future-orientation, acceptance of natural capital approaches, and appetite for innovative intervention, with Perspectives 1 and 2 in favour and Perspectives 3 and 4 opposed (Figure 2).
However, both sides themselves contain contrasts. Perspectives 1 and 2 favour ‘future-oriented’ conservation, but disagree on formalised ecosystem management. Perspectives 3 and 4 both oppose key aspects of ‘future-oriented’ conservation but for very different reasons: Perspective 3 dislikes aspects of novelty and change whereas Perspective 4 dislikes the ubiquity of humans. These issues also split the rewilding community, with ‘active rewilding’ associated with future-oriented Perspective 2, and ‘passive rewilding’ with past-oriented Perspective 4. These distinctions are important for understanding why conservationists may disagree in unexpected ways.

‘Rewilding’ is not necessarily polarising: The lack of major disagreement around rewilding offers potential common ground, with different perspectives agreeing it should not cause significant conflict. However, perspectives differed on how rewilding should be applied, manifested in divergent attitudes to human intervention in ecological processes and appetite for uncertainty. ‘Active rewilding’ is more consistent with the ‘Innovation in Nature’ perspective whereas ‘passive rewilding’ has more in common with ‘Re-establishment of Wild Nature.’ This suggests apparent agreement may be, in part, attributable to rewilding’s continuing ‘plasticity,’ and that divergence within the rewilding movement itself continues in practice. However, it also indicates that the term itself need not be avoided among conservationists, and that rewilding is considered a legitimate feature of conservation discourse.

Conservationists are comfortable with a diversity of approaches: Conservation discourse is sometimes presented in confrontational terms, but this study indicates that conservationists generally understand and appreciate different perspectives and contexts. This is represented in the number of ‘confounded’ participants who associated with more than one perspective – 11 out of 30 – and participants’ comments in interviews. Conservationists are often happy to see different approaches in different places, provided their own approach is not adversely affected. Conservation leaders, including those implementing the 25YEP, should therefore adopt strategies that allow space for all four of the different perspectives identified here to be expressed.

With conservation globally engaged in attempts to halt a biodiversity crisis, understanding these different perspectives will increase the chance that conflicts can be mitigated, and the shared goals of conservationists can be achieved.
Paper 2: Everything Under Control? Comparing Knepp Estate rewilding project with ‘traditional’ nature conservation

This paper has been published in PLoS ONE, 16(6): e0241160, June 2021
https://doi.org/10.1371/journal.pone.0241160

Abstract

‘Rewilding’ is an increasingly prominent concept in conservation, but one that has attracted controversy. Debate frequently focuses on human ‘control’ over nature. ‘Traditional’ conservation has been presented as involving ‘high control,’ and rewilding as ‘low control.’ Opposition to rewilding often stems from a perceived lack of control and associated perception of increased risk and uncertainty.

This paper explores the concept of control in conservation. I identify multiple dimensions of control (‘stabilisation’, ‘location’, ‘prediction’ and ‘outputs’), illustrating that control is not a simple, linear concept. I compare two ethnographic case studies: the Sussex Wildlife Trust’s Old Lodge nature reserve; and Knepp Estate, one of the most influential rewilding projects in the UK. I use them to test assertions made about control in ‘traditional’ conservation and ‘rewilding’.

I outline how Old Lodge does not exert precise control in all respects, but involves elements of uncertainty and negotiation. I describe how Knepp’s model of rewilding reduces control in some dimensions but potentially increases it in others. I conclude that, while Knepp’s rewilding does represent a significant conceptual departure from ‘traditional’ conservation, it should not be characterised as an approach that reduces control in a simplistic way.

Based on this analysis, I argue that reduction of control does not necessarily underpin the concept of rewilding. Rather, there is interplay between different control dimensions that combine to form multiple ‘configurations of control.’ Using a framework of ‘configurations of control’, debate about the place of rewilding in conservation can become less polarised, and instead involve an active discussion of what configuration of control is desired.

This analysis has the potential to increase understanding of rewilding projects as part of plural conservation strategies, in the UK and globally.
1. Introduction

The nature conservation community is engaged in a series of fundamental debates about its purpose and its methods. In the context of a global ‘biodiversity crisis’ (Ngo et al., 2019; Sánchez-Bayo and Wyckhuys, 2019) and the widespread assertion that the Earth has entered ‘the Anthropocene’ (Crutzen and Stoermer, 2000; Malhi, 2017), conservationists are being asked to respond with different approaches that meet the challenges of the 21st century (Rands et al., 2010; Hamilton, Bonneuil and Gemenne, 2015; Thomas, 2017).

1.1 Rewilding and ‘traditional’ conservation

Within this discussion, ‘rewilding’ has become increasingly prominent, particularly in Europe and North America. While it has no single agreed definition (Jørgensen, 2015), it is often presented as a significant break from ‘mainstream’ conservation, eschewing human ‘management’ in favour of greater ‘non-human autonomy’ (Prior and Ward, 2016). It is frequently divided into ‘active rewilding’, that involves extensive species (re)introductions to establish dynamic processes; and ‘passive rewilding’ that involves the withdrawal of human intervention to ‘let nature go’ (Sandom et al., 2019).

Though varied, rewilding approaches tend to share particular characteristics. They frequently promote a shift in focus from the composition of an ecosystem’s species assemblage towards ecosystem functions and processes (Lorimer et al., 2015). While ‘active’ rewilding may involve altering or restoring the species composition of an ecosystem, it nevertheless tends to emphasise the function played by those species within a dynamic system, potentially including the use of ‘non-native’ or domesticated proxy species (Svenning et al., 2015). The frequent focus on animal species in rewilding marks a different emphasis from some other forms of restoration ecology that focus on plant assemblages. Rewilding approaches also broadly share the stated ambition of reduced human management in the long term (Sandom et al., 2013). Whether they succeed in delivering reduced management, however, remains an ongoing question (Wynne-Jones, Strouts, et al., 2020).

Rewilding has been proposed by some as the answer to an array of modern challenges, from mental wellbeing to flood management, as well as addressing the biodiversity crisis (Monbiot, 2013). By others it has been viewed as a dangerous departure from conservation norms by permitting higher levels of risk (Caro and Sherman, 2009; Rubenstein and Rubenstein, 2016), and a threat to rural communities and ways of life by forcing out traditional farming practices (Olwig, 2016).

Rewilding debate does not therefore tend to represent disagreement about the aim of countering the biodiversity crisis, around which there is significant consensus (Sandbrook et al., 2019). Rather, it
involves disagreement about how best to achieve that aim, resulting in questions about what rewilding is and what it represents for conservation (Wynne-Jones, Strouts, et al., 2020).

1.2 The significance of ‘control’ in conservation

Within these debates, the issue of ‘control’ is a central concern. ‘Traditional’ European forms of conservation have been described as ‘conservation as control’ that deploy ‘management by interference’ to maintain existing, historical landscapes (Adams, 2003).

Alternative forms of conservation have placed greater emphasis on processes and dynamism – for example, ecological restoration that has attempted to (re)establish functioning dynamic systems (Hobbs et al., 2014; Wiens and Hobbs, 2015; Corlett, 2016). However, some have argued that conservationists will often only proceed with restoration when they are confident they know the general outcomes of the process – thereby keeping within fixed bounds and attempting control through scientific prediction (Adams, 2003).

Similarly, approaches like ‘wilderness management’ that seek to preserve ‘pristine’ nature – particularly associated with North America and influential globally (Linnell et al., 2015) – have been critiqued for representing imagined human conceptions of ‘wildness’ that are nevertheless ‘managed’ (Cronon, 1996) and for producing nature that is ‘locked up’ within geographical boundaries and allowed to exist only ‘at the whim of legislators and government policy’ (Adams, 2003).

Recently, the discourse of control in conservation has converged with concepts of biosecurity. Terms such as ‘feral’ are used to describe ‘unsanctioned life’ (such as wild boar) that is challenging and shaping new ideas about human-nature relations, and the control relationship between them (O’Mahony, 2020; Wynne-Jones, Clancy, et al., 2020).

The assertion that the Earth has entered the Anthropocene has expanded these debates, contributing to suggestions that the entire planet is ‘post-wild’ (Marris, 2011) or ‘after nature’ (Lorimer, 2015). Some, in characterising humanity as if it is a unified entity, have argued that humans have ‘no alternative except to shoulder the mantle of planetary stewardship’ (Ellis, 2012). This line of thought implies that uncontrolled, wild nature is a modern impossibility.

In contrast, broader discourse concerning the role of ideas of control in modernity more generally, questions whether notions of ‘control’ are deliverable in anything other than the particular case of well-functioning machines. Stirling (Stirling, 2019) argues that when such visions of control (for instance in engineering approaches to Sustainability) meet wider real-world contexts, then ‘control’
is not generally possible. Based on direct routine operational experience with machines, his working definition of control is:

‘...realising fully and solely a prior set of intended end(s), with no unintended effects’ (Stirling, 2019:6)

On this basis he argues that, in complex contexts, attempts at control are more likely to ‘influence’, ‘impact’ or ‘modify’ some part of the intended ends, rather than effecting ‘control’ over them.

If a term like ‘control’ is held to span such a wide range of meanings in conservation (from ‘influence’ to full machine-like determinism) then this discourse contains, on one side, a sense that control is almost impossible to avoid, and on the other that it is almost impossible to achieve.

1.3 Rewilding and control

For conservation, the idea of ‘rewilding’ brings the concept of control into even sharper focus. Rewilding is often presented as an explicit attempt to relinquish control, in opposition to excessively controlling ‘traditional’ conservation. Arguments for rewilding are frequently founded on a belief that greater natural dynamism and reduced long-term human involvement can help to arrest the global decline in biodiversity (Jepson, 2016a).

Rewilding has been described as ‘resisting the urge to control nature and allowing it to find its own way’ (Monbiot, 2013); as ‘passive management of ecological succession with the goal of restoring natural ecosystem processes and reducing human control of landscapes’ (Navarro and Pereira, 2012); as ‘a process in which a formerly cultivated landscape develops without human control’ (Höchtl, Lehringer and Konold, 2005); and as ‘letting ecosystems evolve out of human control’ (Schnitzler, 2014). Rewilding is often therefore seen to represent a change in the control relationship between people and nature – reducing control and unleashing a nature that is more ‘self-willed’ and embracing unpredicted, emergent properties (Svenning et al., 2015; Jepson, 2016a).

For Anderson et al (Anderson et al., 2019) ‘...rewilding specifies practices explicitly aimed at a “controlled decontrolling” to promote the agency of nonhuman biophysical processes.’ It is this perception of increased ‘non-human autonomy’ (Prior and Ward, 2016), and associated increase in perceived risk, that also underpins much opposition to both ‘passive’ rewilding (Höchtl, Lehringer and Konold, 2005) and ‘active’ rewilding (Rubenstein and Rubenstein, 2016).

However, the degree to which rewilding practice actually delivers ‘low control’ is the subject of continuing debate (Wynne-Jones, Strouts, et al., 2020). Jørgensen (Jørgensen, 2015) argues that: ‘the path to this uncontrollable nature is to reinvolve humans and control nature’. Debate includes
whether rewilding projects aim to re-establish a form of ‘wild’ nature based on a past baseline (similar to more traditional ecological restoration), versus enabling autonomous processes that proceed into the future without any preconceived ‘end point’ (Lorimer and Driessen, 2016; Wynne-Jones, Strouts, et al., 2020).

The idea of ‘non-human autonomy’ is frequently used as a defining feature of rewilding (Prior and Ward, 2016; Ward and Prior, 2020) and would appear to represent the opposite of ‘control.’ However, some have challenged the idea that rewilding delivers non-human autonomy, pointing out the potential contradiction in using ‘autonomous’ non-humans to deliver the human objective of ecological restoration (Von Essen and Allen, 2016). Counter-arguments contend that this is too simplistic a view of non-human autonomy, and that rewilding can enable autonomy to emerge in different ways depending on the spatial and political context. Therefore, while in broad terms ‘non-human autonomy’ represents a challenge to ‘control’ by humans specifically, its emergence is complex and contingent (DeSilvey and Bartolini, 2019; Ward and Prior, 2020).

Tension also exists in the rewilding movement between ‘anthropocentric’ and ‘biocentric’ visions – i.e. whether rewilding represents a means to achieve a set of desired ends, or an effort to enable natural autonomy for its own sake (Wynne-Jones, Strouts, et al., 2020). Wynne-Jones et al (Wynne-Jones, Strouts, et al., 2020) suggest that, in the UK at least, the trend among rewilders is away from the recreation of past systems and towards a more novel, future-oriented vision. They argue that rewilding is inspiring a genuine departure from ‘traditional’ conservation by generating new ideas and conceptual spaces, but also find that there is so far a limit to which rewilding projects are actually able to fulfil their ambitions to ‘let go’ in practice. This contributes to uncertainty about the long-term direction of rewilding and the extent to which ‘letting go’ or reduced control is achievable.

1.4 Dimensions of ‘control’ in conservation

‘Control’ is therefore important in debates about conservation generally, and rewilding in particular – but ‘control’ is a complex idea. Despite significant analysis of issues of power and control in conservation (Wynne-Jones, Clancy, et al., 2020) it remains a difficult concept to pin down. While others have focused in particular on the political ecology and ‘biopolitics’ of power and control in conservation (O’Mahony, 2020; Wynne-Jones, Clancy, et al., 2020; Wynne-Jones, Strouts, et al., 2020), this paper seeks to add to the understanding of rewilding’s place in conservation by unpacking what ‘control’ can mean in different settings.

Stirling’s machine-like characterisation of control (Stirling, 2019), ‘...realising fully and solely a prior set of intended end(s), with no unintended effects,’ can be seen in conservation in a variety of ways.
Perhaps the most straightforward expression of control in conservation might be called ‘stabilisation’. This would describe the types of conservation that Adams (Adams, 2003) calls ‘conservation as control’ – actively intervening to keep an ecosystem stable and prevent it from transitioning into a different form. This has similarities with ‘control theory’ – a concept originating in engineering that uses negative feedbacks to maintain system-stability and prevent deviation, and that has been applied by some to conservation (Robinson, 2007). It could potentially include allowing systems that can switch between ‘alternative stable states’ (Kéfi, Holmgren and Scheffer, 2016) while attempting to keep within desired limits. This strand of control relates to wider environmental themes such as ‘planetary boundaries,’ that compel humanity to maintain nine ‘control variables’ within certain parameters to maintain a ‘safe operating space’ for people (Rockström et al., 2009).

A different apparent strand of control in conservation relates to keeping ‘nature’ within particular geographical boundaries, and could be called control as ‘location’. This type of control appears in Adams’ contention that ‘wild’ nature can be ‘locked up’ in designated places. It relates to debate about ‘land-sparing’ (setting aside specific areas for nature) versus ‘land-sharing’ (making human landscapes more hospitable for biodiversity) – the former indicating elements of control as location (Marr, Howley and Burns, 2016). It is visible in calls that ‘half the Earth’ should be assigned to nature (Kopnina, 2016; Wilson, 2016). This sort of control could also relate to the distribution of particular habitats and species through concepts and language like ‘non-native’, ‘alien’, ‘invasive’ and ‘feral,’ with the implication that organisms have places that they ought and ought not to be (Davis, 2011; Simberloff, 2011; Thomas, 2017). It is here that conservation and biosecurity potentially converge in the control of ‘unsanctioned life’ (O’Mahony, 2020).

Control may also operate through ‘prediction’. Certain conservation practices might allow dynamic ecological processes, but only permit them to take place if the expected results are considered known and acceptable – described by Adams (Adams, 2003) as ‘thinking nature’s thoughts’. This could apply to forms of ecological restoration, particularly species (re)introductions where scientific predictions are used to reduce the perceived risk of unintended consequences (Aslan et al., 2014). It may also apply to proposals for constructing entire systems (including ‘active’ rewilding (Donlan et al., 2006)) based on predictions that the interactions between different organisms through ‘trophic cascades’ will deliver particular outcomes (Svenning et al., 2015; Von Essen and Allen, 2016).

There are also ways in which conservation may attempt control by stipulating not the environment’s form but the goods and services that it is required to produce. This kind of control as ‘outputs’ could be attempted through management frameworks that require particular results, for example the
legal designation of a conservation site based on the protection or expansion of particular species (Jepson, 2016a). Such bureaucratic governance, while not necessarily mandating a particular approach, may lead to attempted control through its requirement for results (Scott, 1998). This kind of control could apply to ‘natural capital’ approaches that measure and incentivise the delivery of particular public goods and benefits (including biodiversity indicators) (Mayer, 2018). It could include the delivery of ‘novel ecosystems’ that, despite having no historical precedent, nevertheless produce desirable ecosystem services (Perring, Audet and Lamb, 2014).

Each of these dimensions of control relates to Stirling’s working definition in different ways. Stabilisation attempts the realisation of a prior set of ends simply by maintaining the status quo. Control as location attempts to deliver a set of intended ends in relation specifically to geographical boundaries. Prediction attempts control, and the avoidance of negative unintended consequences, by delivering particular ends at a future point in time. Control as outputs requires the realisation of ends, defined as the products of the ecosystem in question.

These apparently different forms of potential control reveal that debates in conservation do not relate to a simple spectrum of high to low control. Rather, they are characterised by multiple different, overlapping dimensions of control. Drawing on Stirling, and combining stabilisation, location, prediction and outputs, it is possible to attempt a working definition of control in conservation, as:

“The intention to realise a prior set of desired ends, and avoid undesired outcomes, regarding the form, location, processes and/or outputs of an ecosystem, now or in the future.”

Rewilding is held up, by some, as a means to relinquish human control of nature. Taking the definition above, it becomes important to understand whether or not rewilding marks a materially different approach to control from ‘traditional’ conservation.

**1.5 Case studies: Old Lodge and Knepp Estate**

To explore these issues effectively, it is important to move beyond conceptual debates and to ground discussion in robust analysis of specific, real-world examples of practice (Pettorelli et al., 2018). To do so, this paper compares two in-depth ethnographic case studies from the UK: Old Lodge nature reserve, managed by the Sussex Wildlife Trust, and the rewilding project at Knepp Estate (Map 1).
These two sites are useful for examining the operation of ‘control’ in conservation because, in the way they are often presented by those involved, they represent opposite ends of a spectrum of control.

Old Lodge, in the high weald of Sussex in southern England, comprises around 73 hectares (180 acres) and is managed as a heathland site within the wider heathland landscape of the Ashdown Forest. Management activities, undertaken by a regular volunteer group and overseen by a Sussex Wildlife Trust officer, include scrub clearance, cutting, management of bracken, and the use of grazers (both cattle and ponies). The reserve is subject to a range of formal designations, including Site of Special Scientific Interest (SSSI) and Special Protection Area (SPA), and is part of the wider Ashdown Forest Area of Outstanding Natural Beauty (AONB).

The stated approach of Old Lodge is that of ‘high control’ conservation:

“Sussex Wildlife Trust has managed Old Lodge Nature Reserve for over 30 years... Scrub has been removed to maintain the open heathland and woodland areas have been managed... Bracken has been managed by spraying and scraping... Species have responded to management well...” (Monk-Terry, 2014)
Knepp Estate is one of the most high-profile and influential rewilding projects in the UK. Owned and run by Sir Charles Burrell and Isabella Tree, it comprises more than 1400 hectares (3500 acres) and was, until 2001, an intensive arable and dairy farm. Since then, Knepp has been managed to deliver ‘regeneration and restoration’ of nature. Knepp’s approach involves free-ranging herds of cattle, ponies, pigs and deer. The Estate sells meat from these animals, and runs nature-based tourism and camping. Knepp has gained particular attention for thriving populations of vulnerable species including nightingales (*Luscinia megarhynchos*), turtle doves (*Streptopelia turtur*) and purple emperor butterflies (*Apatura iris*). Its profile has soared since publication of the book ‘Wilding’ in 2018 (Tree, 2018).

With the UK poised to transition towards a system of payment for public goods following its exit from the European Union, Knepp was explicitly mentioned in the UK Government’s 25 Year Environment Plan as an outstanding example of ‘landscape-scale restoration in recovering nature’ (UK Government, 2019). Consequently its approach, combining agri-environmental payments, commercial property, eco-tourism and ‘wild meat’ production, is being watched closely by a wide range of landowners who see its version of rewilding as a potential model for future land management.

In contrast to Old Lodge, the stated approach of Knepp emphasises dynamic processes, uncertainty and reduced control:

> “The vision of the Knepp Wildland Project is radically different from conventional nature conservation in that it is not driven by specific goals or target species. Instead, its driving principle is to establish a functioning ecosystem where nature is given as much freedom as possible.” (Knepp Castle Estate, 2020)

By exploring these sites in detail, my aim was to understand:

1. The ways in which control operates in a ‘traditional’ UK nature reserve; and
2. Whether or not Knepp’s version of rewilding represents a significantly different approach to control.

This analysis increases understanding of ‘control’ in conservation in the UK, at a time when these questions are shaping the creation of new conservation policy frameworks as the country leaves the European Union (EU) (Franks, 2016). More widely it enables an increased understanding, based on empirical analysis, of the potentially globally important relationships between rewilding and other forms of conservation.
2. Ethnographic method

Ethnography originated as a method for gaining deeper understanding of (generally non-Western) cultures. In recent decades it has been used to describe a range of approaches, most commonly studies that emphasise direct observation as a primary source of information (Gobo and Marciniak, 2016). It is often used in ‘case-study’ research of a system that has spatial and/or temporal boundaries and its own particular physical and cultural context (Burawoy, 1998; Gobo and Marciniak, 2016). It tends to emphasise the continuous presence of the researcher in the field, though has also been applied to shorter timeframes (Duffy, 2014).

The rich context and detail provided by ethnographic studies can contribute knowledge that can only be achieved through the researcher’s experiences. This also offers the opportunity to test, and potentially falsify, existing theories and beliefs (Flyvbjerg, 2006).

For this study I spent more than 40 days at the two sites across more than a year between July 2017 and October 2018, in addition to extensive further interviews and review of written sources. At Old Lodge I joined a weekly volunteer group, accompanied employees of the Sussex Wildlife Trust to other sites, and conducted key informant interviews. At Knepp, I took part in multiple ecological surveys, meetings, conferences, tours and a safari. I was granted access to Knepp staff and participants, whom I accompanied, observed and interviewed. I spent several days accompanying the stockmen responsible for the animals. Taken together, this provided me with a comprehensive overview of both projects.

In conducting this fieldwork, I used ‘participant observation’ in which I actively took part in activities (Gobo and Marciniak, 2016). This approach enabled engagement with the case studies through participation in conservation activities. It was also an appropriate way to experience how ‘insiders’ of the projects perceived and acted on issues of control that were attributed to them by themselves and others. Participant observation enabled adjustment based on emerging ideas, lending itself to extended, qualitative research grounded in practice (Jorgensen, 1989).

My aim was to gain knowledge of practice that would shed light on the discourse of conservation and rewilding – specifically the claims made about them in relation to ‘control.’ This involved ethnographic methodology that delivered knowledge extending beyond the sites in question to be more broadly relevant. To do this, following Burawoy (Burawoy, 1998) I adopted an approach that started with existing theory, then looked for refutations of that theory in observed practice. This approach enables the deconstruction, reconstruction and, if necessary, rejection of existing theories.
In this case, my theoretical starting point was the discourse outlined above on the relationship between conservation, rewilding and control. In particular, I considered the following assertions:

- That ‘traditional’ forms of European conservation exert significant control over nature
- That rewilding represents the reduction or relinquishing of human control over nature

I also brought into my fieldwork an emerging understanding of different potential dimensions of control, as outlined above.

With this theoretical starting point, my ethnographic research became a process of exploring the extent to which observed practice at the two sites supported or conflicted with existing theories regarding conservation, rewilding and control. Situating the specific, contextual understanding of these sites in broader discourse of conservation enabled me to draw conclusions that are of more global relevance. It is this analysis that is presented below.

This research aligns with what has been described as ‘reflexive science’ (Burawoy, 1998). While some case studies may utilise ‘positivist’ methodologies that attempt to identify theoretical knowledge or generalisable facts, reflexive case studies emphasise knowledge that explicitly embraces context, providing complex, detailed and specific understanding (Burawoy, 1998). This provides knowledge that is unobtainable through ‘positive’ science. It also potentially increases the risk that the researcher is influenced by operation of various gradients of power and privilege within the case study. To counter this, ethnographic researchers are encouraged to be explicit about the power dynamics involved, and to be reflexive about their own position in the inquiry.

It is possible to attempt detached and objective analysis, but with the understanding that elements of subjectivity are unavoidable in any form of scientific inquiry, not just ethnography (Buscatto, 2016). This requires reflexivity to attempt to understand the researcher’s own position in relation to the subject of study, to analyse and challenge its effects. It includes accepting that ‘truth’ can never be definitive or complete and that information may be contradictory or change over time; and continually analysing the social conditions of research, particularly the relationships between actors and between the actors and researcher, to help interpret the situations being experienced (Buscatto, 2016).

In this study, I have been conscious throughout that I come to the issue of conservation and rewilding as someone who cares personally about ‘the natural’, ‘the environment’, ‘wildlife’ and ‘wilderness’. I have a deep appreciation, aesthetically and psychologically, for both ‘nature’ and ‘wildness’. Therefore, while intellectually I am sceptical of simplistic claims or assertions about the importance of ‘nature’, I nevertheless have an emotional sympathy with arguments that value
‘nature’ and ‘wildness’ for their own sake. I am a long-term member of the Sussex Wildlife Trust, as well as an instinctive supporter of the Knepp project.

My broad support for the projects under consideration potentially represents ‘bias’ that I tried to bear in mind in this study. Throughout this paper, I have attempted to account for my own status as someone personally invested in the objectives of the projects being studied. In particular, I have attempted to challenge the ways in which each project is framed, where necessary, as well as my own framing of the issues. I am aware that in the process of this research, I have attempted to balance a critical social science approach, with an approach that is relevant, comprehensible, and useful for conservation practitioners and policymakers. This has led me to attempt to present the research in pragmatic terms – sometimes using language that could be interpreted as acceding to dominant, ‘mainstream’ framings of nature – but also retain high critical rigour. My hope is that this has been somewhat successful, and that this research will contribute positively to the success of conservation and the long-term status of biodiversity in the UK. By being mindful of these motivations, I have attempted at the same time to produce analysis that is of independent value.

This research was granted ethics approval by the University of Sussex Ethics Committee, reference ER/BD75/2. All participants were informed of the nature of the research. Informants received an information sheet and signed a consent form, in line with approved ethics procedure.

3. Results

3.1 Old Lodge

3.1.1 ‘Conservation as Control’

Many aspects of practice at Old Lodge reflect its apparent status as a ‘traditional,’ ‘high control’ conservation project: managing habitats for the benefit of particular species that are considered desirable, both through conservation and restoration.

Sussex Wildlife Trust’s management plan highlights the objective to ‘continue restoring heathland that has been invaded by Bracken, Birch and Pine’ which ‘has been the main aim at Old Lodge since inception of the LNR [Local Nature Reserve]’ (Monk-Terry, 2014) The management plan refers to the fact that heathland is a UK Biodiversity Action Plan priority habitat, with a ‘Habitat Action Plan for Sussex’ that aims to maintain, enhance and expand heathland with approaches including grazing management and the conversion of forestry plantations. The plan also includes Species Action Plans for particular species including nightjar (Caprimulgus europaeus), woodlark (Lullula arborea),
Dartford warbler (*Sylvia undata*), silver-studded blue butterfly (*Plebejus argus*) and southern wood ant (*Formica rufa*).

Reflecting this, I frequently participated in activities designed to reduce birch (*Betula sp.*) and bracken (*Pteridium sp.*). On the site of a small disused quarry we cut birch to open the bare slopes to more light, to encourage flowering plants and insects. We pulled up small seedlings of birch and pine across the reserve, leaving only a small proportion of seedlings. The intention was to prevent the overall number of trees from increasing, and at the same time diversify their age and size distribution.

From late spring, I took part in what volunteers playfully called the ‘annual war on bracken.’ Through the summer months, a significant portion of volunteer time is devoted to cutting or pulling up bracken, often reinforced by spraying with Asulam herbicide and (in the past) large scale scraping of topsoil. This activity was described as a ‘never ending battle,’ to maintain a heathland habitat based on heather.

Areas with thick growth of birch saplings or bracken were described as ‘bad’ and the two species as ‘invasive’ and ‘bullies.’ Both species were considered a significant threat to the restoration and maintenance of the reserve. The presence of pine trees was also, to some degree, considered incompatible with the heathland status of the site (though a more complex picture of the status of trees on the site is discussed below).

Active management was the norm. On several occasions I took part in laying cut logs to block drainage channels, to improve access for people and to ‘wet up’ the area for wet-loving plants. In places, this was complemented by deliberately cutting into the moss to encourage sundews (*Drosera sp*). I took part in digging out the edges of a pond, to maintain the open water by removing grass and rush, focusing particularly on the southern edge to allow more light to reach the water, and maintaining the slope at 45 degrees to enable continued access for animals, including raft spiders (*Dolomedes fimbriatus*). At other times I took part in monitoring bird boxes, installed across the reserve for small bird species, and inspecting corrugated metal or plastic sheets left out for reptiles, including adders (*Vipera berus*).

In relation to the existing discourse and theories outlined above, these activities suggest the presence of multiple dimensions of control. Specifically, the desire to maintain heathland and prevent vegetation succession indicates attempted ‘stabilisation.’ The focus both on increasing particular species and on the restoration of heathland generally indicates control as ‘outputs,’ while the designation of certain species as ‘invasive’ suggests elements of control as location.
3.1.2 The art of negotiated control

Within this formal approach, however, there is an element of subjectivity and flexibility. The Wildlife Trust manager responsible for the site described how the management plan is a negotiated document. It is the result of combining different perspectives, particularly from specialists in different species types, and attempting to produce a plan that delivers results in several areas.

Perhaps obviously, the nature of the plan depends on the individuals inputting into it. While the finished management plan presents activities in precise, detached and objective terms, in practice it is much more fluid and flexible. Approaches change over time depending on changing personnel, perspectives, government frameworks and funding. The reserve manager described how decisions about monitoring can be made to support management choices. If stakeholders believe that a reserve should be managed in a particular way in future, they may choose which indicators to monitor in advance, to provide required evidence for the future management plan.

The manager draws together these strands into a plan that meets a range of different requirements, while also exercising his own judgement. He acknowledged he was not just dispassionately applying a technical approach based on ‘objective science’; there was a large degree of art involved.

Once drafted, the management plan is scrutinised by the Trust’s Conservation Committee and, as Old Lodge is an SSSI, it is submitted to Natural England for consent. This includes the question of whether it is in ‘favourable’ or ‘unfavourable’ status according to ecological indicators. While this is in principle an ‘objective’, technical issue, negotiated subjective considerations and uncertainties are apparent.

Old Lodge sits within Ashdown Forest but has a unique history that has resulted in tree cover that is considered ‘too extensive’ for an SSSI heathland site. Natural England therefore encourages the Trust to reduce the number of trees. Others consider the more extensive tree cover to be a valuable part of Old Lodge’s unique character: the Forestry Commission, which also has a stake in the site, would like tree cover to be maintained. This issue is therefore the subject of negotiation between multiple institutions and, for now, the site’s historical status has largely taken precedence over attempts to conform immediately with the conditions of the SSSI. The site remains in ‘unfavourable status’ as a result.

These subjective elements apparent at Old Lodge are significant when returning to the definition of control as ‘the intention to realise a prior set of desired ends, and avoid undesired outcomes...’ because clearly ‘desired’ and ‘undesired’ are subjective and contingent. In relation to the pre-existing discourse, the use of management to maintain historical features of the site suggest
elements of ‘control as stabilisation’; but this is in tension with proposed ‘control as outputs’ related to the site’s protected status. This tension cannot be navigated with detached ecological science, but through ongoing human negotiation. Subjectivity also enters into ostensibly objective ecological indicators, with future measures of ‘control as outputs’ sometimes chosen because they are expected to provide support in advance for inherently subjective judgement calls. This subjectivity, and the resulting tension between different types of control, brings nuance and complexity to the assertion that ‘traditional’ sites like Old Lodge are simply examples of ‘high’ control.

3.1.3 Modern heathens

The picture of ‘control’ at Old Lodge is further complicated by the practical reality of work on the site. The volunteer leader described how a lot of activity is guided by a sense of how the traditional commoners on the heath (the ‘heathens’) would historically have behaved: cutting trees, clearing areas and grazing animals. While these activities are consistent with the Trust’s management plan, they are not directed precisely. The volunteer group has a degree of latitude in what it does, with an ability to experiment with actions that have uncertain outcomes. Thinning trees and blocking drainage channels, for example, had a clear rationale but the longer-term consequences were unknown. While the immediate ‘outcomes’ of the work may have been precise (e.g. thinned trees) the longer term ‘ends’ were uncertain. The work was often described as ‘suck it and see’ and sometimes led to unintended results. For example, volunteers described how previous scraping of topsoil to remove bracken had resulted in bare earth being colonised by a thick growth of birch seedlings – an unwanted outcome.

Other activities, for example ‘ring-barking’ pine trees to reduce tree density but leave standing dead wood, were described as being done by ‘feel’ – a form of control but not in precise, mechanistic terms.

These observations add to the findings that sites of this type cannot simplistically be characterised as ‘high control.’ In this case, it is not possible for the Wildlife Trust to exert total control over the site even if it wanted to, and in some cases the Trust itself attempts to reduce control. The Trust’s reserve manager described how the Old Lodge volunteers are experienced, knowledgeable and capable, but that they may be ‘too effective’ – for example being so thorough in removing tree seedlings that the site risks becoming ‘over-managed.’ Some volunteers themselves commented that their work sometimes felt like ‘gardening’ or ‘weeding’, and occasionally expressed concern that ‘there will be no trees left here at this rate.’
This presents the interesting situation in which the Wildlife Trust, potentially perceived as implementing a ‘high control’ approach to the site, is instead responsible for asking its volunteers to reduce elements of their management.

3.2 Knepp Estate

3.2.1 Knepp’s approach

Knepp’s approach is, in principle, defined by its differences from the sort of ‘traditional’ conservation practised at Old Lodge. As outlined above, its philosophy and language are explicitly of dynamic processes, uncertainty and reduced control. It also represents a deliberate attempt to pioneer a new business-model for land management:

“The aim is to show how a ‘process-led’ approach can be a highly effective, low-cost method of ecological restoration – suitable for failing or abandoned farmland – that can work to support established nature reserves and wildlife sites, helping to provide the webbing that will one day connect them together on a landscape scale.” (Knepp Castle Estate, 2020)

To understand Knepp’s approach and how it relates to the discourse and theories of control in conservation, it is important to understand both these dimensions – the philosophical and the practical – and how they combine.

Knepp’s owners are clear that the primary initial motivation for embarking on a rewilding project was financial. After inheriting the estate in 1987, they spent around 13 years attempting to make a profit through intensive arable and dairy farming, but by 1999 the business was ‘in crisis’ (Tree, 2018:31). A combination of falling market prices for milk and cereals, fluctuating agricultural subsidies, and Knepp’s low-grade clay soil, meant that despite intensification the farm made a cash surplus in only two years over a 15 year period – resulting in an overdraft of £1.5 million (Tree, 2018:39). Consequently, in 2000 the owners made the decision to abandon intensive farming and look for alternative ways to maintain the estate.

Knepp consists of three ‘blocks’ – Northern, Middle and Southern. The management of these has differed, driven to a large extent by different sources of funding. In 2001, Knepp received Countryside Stewardship funding to restore the historic ‘Repton Park’ in the Middle block, around Knepp Castle itself, including introduction of longhorn cattle (Photograph 1), Tamworth pigs (Photograph 2), Exmoor ponies and fallow deer. This was extended to include the entirety of the Middle and Northern blocks in 2004, including perimeter fencing to enclose free-ranging animals.
Meanwhile, reform to the EU’s Common Agricultural Policy (CAP) in 2003 enabled the Southern block to be left fallow without loss of subsidies.

By 2006, Knepp had developed a proposed ‘Holistic Management Plan for a naturalistic grazing project,’ but it was not until 2009 that it managed to secure Higher Level Stewardship agri-environmental funding for the whole estate. This meant the Southern block could also be enclosed to allow free-roaming animals. Unlike the Northern and Middle blocks, the Southern block therefore had six years of largely uninterrupted vegetation growth before animals were introduced – resulting in much more vigorous vegetation there now than in the other two blocks.

Knepp continues to be managed as a naturalistic grazing project, with animals – cattle, ponies, pigs and deer – enclosed within the blocks but otherwise largely free to roam. This approach was put together over time. While its progress reflected a developing philosophy of rewilding, it was equally driven by financial realities and the availability of funding.

Today, Knepp’s business model is founded on income from a range of different sources. It continues to receive agri-environmental subsidies and by relinquishing intensive farming it has released a range of buildings that have been repurposed and leased as commercial and residential properties, generating significant further revenue. The ‘wild meat’ business also generates income, as does the ‘Knepp Wildland’ camping and safari business that was established in 2014. In this sense, Knepp has not been ‘free’ to be managed according to whatever conservation approach the owners choose. It is constrained by the need for financial viability.

Despite these practical considerations, however, the rewilding philosophy underpinning Knepp is fundamental. Knepp is presented, first and foremost, as a conservation project, and this was borne out by the conversations I had with members of staff. For example, interviewees reported that the estate could make more money from meat production if it chose to slaughter cattle at ages to optimise the grading of the beef – thereby increasing its value. However, the owner has consistently chosen to prioritise landscape management over meat production. The stockman told me:

‘It depends whether we put on our commercial hat or conservation hat. If commercial produce was the primary goal, then we’d manage them differently.’

The project is also committed to its rewilding philosophy in conservation terms. Initially, Knepp had the freedom to adopt a different approach because it was an intensive farm with little biodiversity value – meaning that the project began from a ‘low base’ with little to lose. Now, though, Knepp is home to large populations of threatened species, especially turtle doves and purple emperors, and I
was told that some conservationists have encouraged them to begin managing the habitats more actively to support these species. These calls are being resisted. During meetings I attended, the owner said:

‘If you allow conservationists to push you towards managing for those species, you are still in the realms of human control.’

This position was backed up by others, with the guide on a Knepp safari saying:

‘Management is the most hated word. If we can do the least we can, it’s best.’

Isabella Tree describes a focus on ‘self-willed ecological processes’ and ‘restoration by letting go, allowing nature to take the driving seat’ (Tree, 2018).

Importantly, however, Knepp is not a value-neutral operation. The project is founded on the premise that a rewilding approach, while not aiming for specific target species, will increase the abundance and diversity of wildlife by establishing a ‘functioning ecosystem.’ Knepp’s ecologist is responsible for monitoring a wide range of species and other indicators, and reporting on them. Results that show increasing diversity and abundance are described as ‘success’.

The widespread interest in Knepp is based on such success, and this is particularly relevant regarding the UK government’s plans for future Environmental Land Management schemes (ELMS) that pay for ‘public goods,’ including biodiversity (UK Government, 2018). While not focusing on individual species, Knepp’s model is required to deliver biodiversity more generally.

In relation to the discourse and theories of control, therefore, Knepp’s transition from an intensive farm to a rewilding project has altered, but not removed, a form of control as outputs. It has shifted from an exclusive focus on production of food to a primary focus on production of biodiversity. While it distances itself from ‘traditional’ conservation by eschewing target species, its model is nevertheless founded on conservation outputs: the increase in biodiversity overall. This produces tension between the presentation of Knepp as ‘low control’ on one hand, and its reliance on continued production of those outputs on the other.

3.2.2 Wood pasture

While Knepp is not focused on the delivery of target species, it is influenced by an underlying vision of a particular system – namely wood pasture.

Tree describes the profound influence on Knepp of the rewilding project at Oostvaardersplassen (OVP) in the Netherlands, pioneered by the conservationist Frans Vera (Tree, 2018). OVP consists of
6000 hectares of land reclaimed from the sea, designated as a nature reserve after it was colonised by large numbers of greylag geese. Cattle, ponies and deer were introduced with the intention of re-establishing natural processes and creating a ‘minimal intervention’ rewilding project (Lorimer et al., 2015).

OVP was founded on Vera’s proposition that much of prehistoric Europe was a mosaic environment of grassland, scrub and woodland, kept open by the activity of large herbivores that dynamically interacted with vegetation as ‘ecosystem engineers’ (Vera, 2002). This proposal countered earlier theories that Europe’s prehistoric landscape primarily consisted of ‘climax vegetation’ of closed-canopy forest (Ellenberg, 1988).

Knepp reflects what Wynne-Jones et al. (Wynne-Jones, Strouts, et al., 2020) consider to be a general trend in UK rewilding in that it is not explicitly aiming to recreate an ecosystem from a particular point in time. Knepp’s owner told me:

‘You cannot recreate the past. What you’re doing is learning from the past but creating something new.’

Nevertheless, the broad adherence to Vera’s theories about prehistoric ecological processes and landscapes has significantly shaped Knepp’s approach.

As at OVP, the species introduced at Knepp were deliberately chosen as proxies for extinct wild animals: longhorn cattle for aurochs; Tamworth pigs for wild boar; and Exmoor ponies for tarpan; as well as both red and fallow deer. These introductions were made with the underlying assumption that their activity would lead towards an overall result of a wood-pasture environment.

This theoretical foundation has influenced not only the initial design of the project but also its ongoing management. In particular, it manifests in the desire for a ‘balance’ between herbivores and vegetation. The owner described to me the desire to ‘get the stock numbers right in the sense of healthy, well animals and how it feels in the landscape.’ They are aiming, he said, for ‘a proper battle between animals and plants.’

This translates into practical decisions, particularly about stocking densities, based on a combination of ecological considerations and the amount of food available to the animals. The owner said:

‘A couple of years ago we reduced the number of animals as we felt there were too many. It is largely subjective, about a feel for the carrying capacity of the land. So we tweak the animal numbers and see what happens.’
The number of Tamworth pigs, in particular, has been reduced over time because they were found to be causing ‘too much’ disturbance and would ‘destroy everything.’ Similarly, Knepp’s owner and his stockman are required constantly to make judgements about the stocking density of cows, based on the carrying capacity of the land and their effect on the vegetation.

Photograph 1: Longhorn cattle at Knepp

Here, a conscious use of language is interesting. For example, the owner considers the term ‘overgrazing’ to be too loaded, because it implies there is some correct level of vegetation. Other conservationists I spoke to, not employed by Knepp, have used the term in the context of managing the land to maintain a healthy, biodiverse system. It is notable that, despite seeking to establish, in the owner’s words, a ‘balanced fight’ between animals and vegetation by adjusting stocking levels, the use of the term ‘overgrazing’ is considered at Knepp to be too closely associated with farming.

Despite this, in relation to theories of control in conservation, the vision of wood pasture qualifies Knepp’s overall approach of reduced control. In founding the project on the premise of a wood pasture environment, Knepp introduces elements of control through prediction (the expected
results of herbivore introductions); control as outputs (the desirability of a semi-open, dynamic mosaic environment); and some degree of stabilisation (through the need for ‘balance’ in the system).

3.2.3 Animal management

Knepp’s ‘naturalistic grazing’ model, incorporating the introduction of domestic animals as proxies for extinct herbivores, means in some respects it represents a fusion of farming and rewilding – one reason it generates interest from farmers looking for a viable future business model.

A significant feature of this model is the emphasis placed on animal welfare. Here, Knepp makes a clear departure from the policy pursued at OVP, where starvation of animals has led to significant public controversy (Kopnina, Leadbeater and Cryer, 2019). In contrast, Knepp’s owner stated:

‘There is no appetite to have animals dying like that; it’s just not something that would work here.’

Consequently, a range of management decisions are made to ensure animals remain in good health. As outlined above, the desire to maintain a ‘healthy balance’ between animals and vegetation forms part of Knepp’s day-to-day management. This is driven in part by the underlying idea of a wood pasture environment, but also by wanting to ensure there is sufficient food for the animals.

On one occasion I took part in a fodder survey with Knepp’s ecologist. This involved assessing the availability of edible plants by estimating the extent of inedible species including fleabane, ragwort and thorny scrub. Though also of ecological interest, this exercise was primarily conducted for animal welfare reasons, including the requirement to report on the availability of fodder to the Soil Association, to maintain the organic status of Knepp’s produce. The fodder survey findings contributed to decisions on stocking levels, made by the owner and stockman based on their assessment of how much food was available.

Beyond the availability of food, ensuring high animal welfare forms an important part of the management of Knepp. On one particular day, I accompanied the stockman as he checked a calf that had not been feeding; another calf with a high temperature; a cow that had suffered an injury while giving birth; a calf with an infected ear; and a cow with an injured hip.

Over time, the policy to ensure high animal welfare has altered how Knepp is managed. When the rewilding project began the intention was for cattle, ponies and pigs to range freely throughout the year, and to reproduce in an unmanaged way. However, this presented problems. For example, cows that had trouble giving birth might go unobserved for a period of days with poor outcomes for both
cow and calf. Additionally, year-old heifers would be ‘covered’ (impregnated) too young, with significant potential health impact. The owner told me:

‘In the wild, the heifer would die and you wouldn’t notice, but that’s not okay in this context.’

Consequently, over time more extensive management has been implemented. Now, bulls, boars and stallions are only allowed into the herds at particular times of year to ensure animals are born within a specific time window. For the cattle, this enables Knepp to bring the herds into enclosures during calving season, to monitor the health of both cows and calves and intervene if necessary – I observed a newborn calf being bottle-fed as it was not managing to suckle successfully.

The control of breeding also prevents an overpopulation of pigs that would be considered too destructive to vegetation. Additionally, with Knepp criss-crossed with footpaths and bridleways, the removal of adult males avoids potential public safety concerns presented by bulls, stallions and boars.

In relation to theories of control in conservation, these decisions inevitably increase the extent of human control at Knepp – a form of control based on outputs related to animal welfare. The fact that it is a high-profile rewilding site likely contributes to the level of this control. Those at Knepp are anxious to avoid the animal welfare criticisms levelled at OVP, as well as any incidents involving people using the public rights of way.

Perhaps obviously, forms of human control also exist in the type of animals themselves. Though chosen as close proxies for their prehistoric wild counterparts, the cattle, ponies and pigs at Knepp are domestic species. One rewilding proponent I interviewed, not employed at Knepp, criticised the approach as perpetuating ‘farming’. In response, Knepp’s owners state that they recognise the existing limitations of the project and do not pretend that it is an unmanaged wilderness. To introduce wild boar rather than Tamworths, for example, would require a licence that would not be permitted owing to Knepp’s public rights of way – an example of Knepp being constrained by external ‘control as location’ that prevents wild boar reintroduction.
In many respects, therefore, while Knepp’s naturalistic grazing model is recognised as a form of rewilding, it retains aspects of farming such as animal welfare and organic certification. This limits the extent to which it can pursue ‘pure’ rewilding objectives. Nevertheless, the stockman told me that while they recognise there is a need to manage the animals, they attempt to push themselves towards lower management:

‘There’s a spectrum from wild to intensively farmed. We’re always trying to push towards the wild end of the spectrum, but we know it’s not possible to go the whole way.’
It is apparent that the production of ‘wild’ meat, while generating significant revenue for the Estate, is a secondary consideration to maintaining a ‘healthy’ balance between animals and the land. This suggests that, while ‘output’ forms of control are apparent, they are focused on conservation and animal welfare outputs rather than traditional farming outputs.

3.2.4 (Re)introductions

Alongside the introduction of domestic animals as proxies for extinct wild herbivores, Knepp is also undertaking introductions of wild species – specifically white storks and beavers. This important dimension of the project occupies a space within ongoing debates about (re)introductions in conservation more broadly, the implications of human interventions, the risk and uncertainty they represent, and their potential for unintended consequences (Corlett, 2016).

The introduction of white storks at Knepp took place as part of a broader project, which aims to establish 50 breeding pairs in southern England by 2030 (White Stork Project, 2020). This initially involved introducing juvenile birds from Poland into a fenced area at Knepp in 2016, with the intention that they would be ‘hefted’ to that location and return there to nest and breed as adults. In May 2020, the first white stork chicks at Knepp successfully hatched.

The introduction of white storks is presented as the restoration of an extinct native species, and therefore part of re-establishing ecological complexity and dynamism to an ecosystem that has lost many of its constituent parts. However, this project has received some criticism, much of it stemming from disagreement about whether the white stork was in fact native in the recent past. Some argue that historical reports may relate to ‘vagrants,’ without storks existing in significant numbers in historical times (Carter, 2020). Doubts about the ‘nativeness’ of the species contribute to concerns about the effect that its release may have on existing species, including protected ground nesting birds and reptiles, with some questioning whether a sufficient Environmental Impact Assessment was carried out (Tout, 2019). The question of ‘nativeness’ also leads to discussion of whether such introductions represent increasing ‘wildness’ or whether in fact, if species are only present through human intervention, they represent an increased level of human management (Carter, 2020).

Proponents of the project argue that the white storks are historically native to southern England, and that they occupy an ecological niche that has been empty since their local extinction. They point to sightings of storks and other evidence that the species was historically present in the area, including the name of the nearby town of Storrington, meaning ‘homestead with storks’ (Gow et al., 2016). They also argue that the establishment of white storks can become emblematic of nature
restoration, provide tourism opportunities and more generally reconnect people with nature (White Stork Project, 2020).

This situation is relevant in a number of ways for the discourse of control in conservation. In one respect, Knepp is receiving criticism for a perceived lack of control, by introducing a species that may have unknown, unintended consequences on existing wildlife. In relation to the theories outlined above, this critique would imply concern about a lack of control as prediction, because there is insufficient certainty about what will happen. In response, Knepp invokes elements of control as location to defend the project. This includes arguing that the species ‘belongs’ in this location because it is native. The implication is that a non-native species would not be justifiable in the same way. Therefore, despite a generally future-facing attitude, the issue of historical nativeness is still present, representing active ‘control as location’. Finally, there is a strong element of control as ‘outputs’ here: the establishment of the white stork is considered a desirable end in itself. It is also supported because of its potential to become emblematic of nature restoration, to inspire people, and to contribute overall to Knepp’s ‘success’ in increasing biodiversity.

The introduction of beavers at Knepp is different in many respects from that of storks. During my fieldwork, the question of introducing beavers was a live discussion, and since then Knepp received approval to go ahead with an introduction. This took place in late 2020, with two beavers released into a ‘semi-enclosed’ area. Both beavers managed to escape the enclosure and the male travelled extensively along the river Adur before being recaptured. Unfortunately, after recapture he died of a suspected bacterial infection, and a second attempt at introductions is planned for later in 2021 (Knepp Estate, 2021).

In 2018 I attended a meeting at Knepp to discuss the possibility of beaver introduction. At the meeting it was clear that this could be considered controversial, and that their potential impacts would have to be mitigated to reassure local stakeholders. The meeting involved extensive discussion of the scientific research on beaver reintroduction, particularly based on examples in Devon. An expert presented the latest understanding of how beavers would behave in different conditions and what outcomes might be expected – for example, the expectation that beavers will only build dams if they do not already have access to water more than 60cm deep. The discussion included what kind of enclosure would be necessary. It was striking that a significant part of the discussion related to how effectively conservationists would be able to predict and/or control the beavers, should they be introduced.

In relation to discourse of control in conservation, beaver introduction at Knepp represents a challenge to control as stabilisation, by introducing new elements of dynamism. But in response,
other forms of control – ‘location’ and ‘prediction’ – are expanded. In fact, it is precisely because Knepp is proposing to change the status quo that more extensive and precise predictions are considered necessary. Some actors questioned how realistic it is to predict the outcomes of a complex event like a species introduction – prescient considering the subsequent escapes – but nevertheless accepted the need to maximise the predictability of the proposals. This indicates a perception that ‘society’ needs the reassurance of an element of control, despite awareness that such control can be uncertain. It chimes with analysis of beaver (re)introductions in Scotland, where the extent of beaver ‘autonomy’ has been found to be contextual and contingent (Ward and Prior, 2020).

Comparison of the two examples of introductions at Knepp, white storks and beavers, is instructive. The beaver project appears to have deployed attempted control as prediction to offset the loss of stabilisation. In contrast, the white stork project has been perceived as involving greater risk and uncertainty – i.e. a lack of control as prediction – and received criticism as a result.

Similarly, a difference in control as location is visible. Both (re)introductions deploy ideas of nativeness. However, the ‘native’ status of beavers is significantly less contested than that of white storks, which has seemingly led to a greater level of acceptance for the beaver project – suggesting that forms of control as location are significant here.

4. Discussion

The comparison of these two ethnographies grounds debate about rewilding and conservation in detailed, real-world examples. As outlined in the Method, this can enable the deconstruction and reconstruction of pre-existing theories and discourse. Specifically, they make it possible to test the frequent assertions that: 1) ‘traditional’ forms of European conservation exert significant control over nature; and 2) rewilding represents the reduction or relinquishing of human control over nature.

To discuss this, it is useful to return to the working definition of control in conservation:

“The intention to realise a set of desired ends, and avoid undesired outcomes, regarding the form, location, processes and/or products of an ecosystem, now or in the future.”
Within this definition, control as stabilisation, location, prediction or outputs may be attempted. Table 1 outlines a broad, simplified comparison of the control dimensions between the two sites. Figure 1 visualises this same simplified analysis, illustrating different configurations of control.

Table 1: Comparison of control dimensions

<table>
<thead>
<tr>
<th></th>
<th>Stabilisation</th>
<th>Location</th>
<th>Prediction</th>
<th>Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Old Lodge</strong></td>
<td>Moderate/High</td>
<td>Moderate</td>
<td>Low/Moderate</td>
<td>High</td>
</tr>
<tr>
<td><strong>Knepp</strong></td>
<td>Low/Moderate</td>
<td>Moderate</td>
<td>High</td>
<td>Moderate/High</td>
</tr>
</tbody>
</table>

Figure 1: Visualisation of indicative Configurations of Control

A range of different dimensions of control are attempted at Old Lodge. Stabilisation takes place by maintaining heathland and preventing vegetation succession, as well as the preservation of some of the historical characteristics of the site, such as tree cover. Control as outputs is apparent, both with the overall restoration of heathland and the management for particular species. Prediction is apparent insofar as actions are taken with a broad expectation of their effects – however, the
existence of consistent management makes this less significant and predictions of results are often quite informal. Control as location also exists, in the sense of removing certain ‘invasive’ species.

Significantly, these dimensions of control are sometimes in tension with each other – for example between the ‘stabilisation’ of the historical site, and the ‘output’ of increasing heathland species – resulting in negotiated decisions. The formal management plan provides a foundation from which a degree of flexibility can exist, enabling management ‘by feel’ as much as by calculation. The application of control is therefore not precise. The establishment of what constitutes ‘desired ends’ is subject to negotiation and can change over time. Undesired outcomes (such as growth of birch woodland) have not always been avoided. This underlines Stirling’s (Stirling, 2019) observation that, for complex open-ended systems, full machine-like control is unlikely to be achieved.

Knepp represents an approach that has rejected defining conservation outputs as the delivery of identified species. This has not, however, removed ‘control as outputs,’ but rather shifted it. While avoiding species-based targets, the ‘success’ of Knepp’s model is reliant on a general gain in biodiversity. In addition, while the philosophy of rewilding is fundamental to the project generally, it is also integrated into the need to operate a functioning business model. The owners and their staff acknowledge that Knepp is not an example of ‘wilderness.’ Rather, it is a model for how to manage low-grade farmland in a financially viable way by producing a number of outputs, the most important of which is increased biodiversity.

Forms of control as ‘outputs’ also persist in relation to animal welfare with Knepp’s naturalistic grazing model representing, in many ways, a fusion of farming and rewilding. This is particularly evident in constant decisions around stocking densities – ensuring that there is sufficient food for the animals and avoiding both overpopulation and other health problems through control of breeding.

The management of stocking densities also represents an attempt to achieve ‘a balanced fight’ between animals and vegetation. Here, Knepp exhibits a degree of control as ‘stabilisation,’ by intervening through the adjustment of animal numbers to maintain a ‘balance’ within desired parameters.

In other respects, control as ‘stabilisation’ has been rejected, and the landscape of Knepp has clearly changed significantly from the intensive farm of 20 years ago. In place of stabilisation, however, there is evidence of increased control as ‘prediction.’ The design of the Knepp system is founded on the general prediction that it will produce a wood pasture environment. More specifically, the introduction of beavers illustrates how a high level of prediction has been used to compensate for
the removal of stabilisation (although the initial results of the introduction illustrate the limits of that control). In contrast, the introduction of white storks has received a greater degree of criticism because of a lower perceived level of prediction.

There are also elements of control as ‘location.’ To some degree this is forced upon the project: despite longer-term ambitions to expand rewilding across the landscape, currently the perimeters of the three blocks are fenced to keep the animals on-site. In other respects, control as location is apparent in the use of ‘nativeness’ to justify the introduction of both beavers and white storks, suggesting that certain species belong in the landscape while others would not.

5. Conclusion

Taken together, the observations at Old Lodge and Knepp contribute to understanding of the position of rewilding in broader conservation discourse. ‘Traditional’ European conservation is frequently portrayed as deploying ‘high control’ while rewilding is seen as a shift to ‘low control.’ For proponents, rewilding represents a break from ‘conservation as control’ that limits natural dynamism and is too limited in its response to the global biodiversity crisis. For critics, rewilding’s perceived loss of control risks unintended consequences that might contribute to biodiversity loss. This characterisation influences how rewilding is discussed, and the extent to which it is accepted.

The ethnographies presented here enable these assertions to be tested against specific examples. By analysing them, it becomes apparent that they cannot be characterised simply as ‘high’ and ‘low’ control examples of conservation. Old Lodge does not necessarily represent an objectively higher level of control than Knepp. Rather, the sites display an interplay between different dimensions of control that may become active in different ways over time and space as locations themselves, and those acting upon them, change. This results in different ‘configurations of control.’

Old Lodge, a ‘traditional’ conservation site, negotiates a configuration of control that balances ‘stabilisation’ (maintaining heathland) with ‘outputs’ (adapting the environment for particular species) – and in which control is by no means absolute. Knepp, a highly influential model of rewilding, retains control as ‘outputs’ but shifts the emphasis from particular species to biodiversity generally. It displays reduced control as ‘stabilisation’ but compensates with potentially increased control as ‘prediction’ and ‘location’. In comparison with Old Lodge, it represents a significant conceptual change, but not a departure from control. Rather, it represents a shift in the configuration of control.
For conservation generally, these findings reinforce the argument that rewilding does not necessarily represent reduced human control of nature (Jørgensen, 2015). This can potentially be reassuring to those who fear that rewilding involves an unacceptably risky reduction in control. However, this analysis also supports the idea that rewilding projects like Knepp do represent a significant conceptual departure from ‘traditional’ forms of conservation (Wynne-Jones, Strouts, et al., 2020). By shifting configurations of control, innovative approaches to conservation are possible without the need to abdicate control completely. This provides the potential to deliver greater acceptance of rewilding projects of this type, not just in the UK but more widely.

The idea of ‘configurations of control’ also potentially provides a useful new framework for considering different approaches to conservation. Using this framework it becomes clear that, contrary to much of the ongoing debate, discussion of rewilding should not be about whether to accept or reject ‘control’, but rather what ‘configuration of control’ is desired.
Paper 3: Life and Time: the discourse and practice of English conservation in the ‘Anthropocene’

Abstract

As conservationists attempt to come to terms with the concept of the ‘Anthropocene,’ a range of visions for conservation are being proposed. Reflecting longstanding debate, these include discussion of whether and how people should ‘manage’ nature, and whether or not conservation activities should be founded on a past baseline.

Despite extensive global discussion of these issues, conservation discourse and practice are contextually specific. This paper therefore analyses the issue of human management of nature in ‘Anthropocene’ conservation by focusing on the specific context of England.

To do so, it draws on discourse analysis of English conservation provided by Q method, and analysis of practice provided by comparative ethnography of two contrasting sites in Sussex, in southern England.

By combining analysis of discourse and practice, this paper presents forms of conservation that are emerging in this particular context and relates them to discussion of conservation in the ‘Anthropocene’ on a larger scale. Specifically, it presents approaches to conservation that share important features: an acceptance of the ubiquity of people; a rejection of attempts to recreate past landscapes in a simplistic way; and an openness to new types of relationship between ‘humans’ and ‘nature’.

This analysis contributes real-world understanding to debate about how conservation relates to the idea of the ‘Anthropocene’. It establishes that the conditions present in southern England are consistent with human-oriented, future-facing visions like ‘new conservation’. They also contain elements consistent with different emerging visions for conservation, including the ‘Cosmocene’ and ‘convivial conservation’, that invoke a sense of care and localised environmental stewardship.

1. Introduction

People involved in conservation and ecology continue to grapple with the implications of ‘the Anthropocene.’ The assertion that industrial societies have pushed the Earth into a new geological epoch (Crutzen and Stoermer, 2000) raises new questions for the relationship between ‘humanity’
and its environments (Hamilton, Bonneuil and Gemenne, 2015; Malhi, 2017). In particular, the Anthropocene concept has cast a new light on pre-existing debates within conservation about the role of ‘humans’ in managing ‘nature’, including the extent to which ‘management’ is necessary or feasible, and the idea of ‘wildness’ and whether it is possible. The idea of the Anthropocene also has major implications for discussion of whether conservationists should be basing their activities on a past baseline, or whether they should emphasise future-facing ‘novel’ ecosystems. How these issues are addressed has significant implications for the types of approaches conservationists adopt.

Debate about how the idea of the ‘Anthropocene’ affects conservation includes various contrasting proposals such as ‘new conservation’ (Kareiva, Marvier and Lalasz, 2012), the ‘Rambunctious Garden’ (Marris, 2011), the ‘Cosmoscene’ (Lorimer, 2015), the ‘Chthulucene’ (Haraway, 2015), ‘Half Earth’ (Wilson, 2016), a ‘Charming Anthropocene’ (Buck, 2015) and ‘Convivial Conservation’ (Büscher and Fletcher, 2019). These visions comprise a range of philosophies for conservation and restoration, including different versions of ‘wilding’ or ‘rewilding.’

A key feature of these debates has been a recognition that the ways in which the relationship between ‘humans’ and ‘nature’ is framed is both deeply political and contextually specific (Dryzek, 2013; Scoones, Leach and Newell, 2015). A major critique of the Anthropocene concept is that it tends to present ‘humans’ as if they are a single, unified, global entity – thereby reducing discussion of human-nature relations to a detached, abstract conversation, and missing the reality that how people relate to nature varies between different cultures and communities (Maris, 2015; Stirling, 2015).

To address this, it is important to contribute analysis of conservation that is based on particular places and case studies, where the ways that both ‘humans’ and ‘nature’ are conceived will be contextually specific (Bennett et al., 2016; Pettorelli et al., 2018). This paper therefore explores the issue of ‘human management of nature in the Anthropocene’ by analysing the discourse and practice of conservation in the specific context of Sussex in southern England.

It begins by outlining some key features of debates about how conservation should be approached in the 21st century, how the concept of the Anthropocene is influencing them, and some of the most widely discussed visions for conservation being proposed. As the focus of the paper is discourse and practice in England, these primarily reflect discussions centred on Europe and North America. The paper highlights this positionality, while also acknowledging that ‘western’ ideas are the product of Europe’s colonial history and incorporate many aspects of thought from around the world.
The paper goes on to examine specific examples of conservation in southern England. To do so, it draws on discourse analysis of English conservation using Q Method (Dempsey, 2021b) and analysis of practice based on two contrasting ethnographic case studies: the Sussex Wildlife Trust’s nature reserve at Old Lodge; and the rewilding project at Knepp Estate (Dempsey, 2021a). It combines this analysis of discourse and practice to develop a detailed picture of ways in which conservation is being conceived and enacted in Sussex, focusing on two major themes: the role of ‘human management of nature’; and orientation in time.

Finally, it relates this analysis back to discussion of conservation in the ‘Anthropocene.’ In doing so, it attempts to identify both the implications of Anthropocene discourse for English conservation, and the implications of these specific examples for the global discussion of how the idea of the Anthropocene is affecting conservation.

1.1 Human management of nature in conservation

The question of human ‘management’ of nature in conservation is longstanding and complex. Its roots reach back at least as far as Aristotle (Descola, 1992) and discussions range through biological sciences (Thomas, 2017), philosophy (Merchant, 2015) political ecology (Walker, 2005, 2007) and wider social sciences (Linnell et al., 2015). How these questions are approached varies between geographies and cultures. This paper focuses on some of the most discussed elements of this discourse in relation to English conservation and the ‘Anthropocene.’

A key underlying element of these discussions is how ‘nature’ is conceived in relation to equilibrium and dynamism. Reaching back to classical Greece and Rome, different expressions of nature variously present nature either as wild, dynamic and unpredictable, or alternatively as delicate, fragile and in balance (Merchant, 2015).

This dichotomy persists. Within ‘western’ conservation discourse, European conservation is frequently associated with approaches that maintain established human landscapes and ecosystems, whereas North American conservation is often characterised as the preservation of ‘wilderness’ (Adams, 2003; Moorhouse and Sandom, 2015). The 20th century origins of both forms of conservation, however, tend to be presented as founded on ideas of equilibrium – either the maintenance of an existing human landscape to prevent change, or the protection of a fragile, balanced, ‘pristine’ landscape from human impacts (Adams, 2003; Wiens and Hobbs, 2015). It has been argued that these assumptions of stability affected the establishment of major conservation
frameworks and institutions, embedding approaches that prioritise species composition over dynamic processes (Jepson, 2016a).

Increasingly though, the idea of equilibrium and stability of ecosystems has been challenged, including particularly the idea of climactic climax (Vera, 2002), and within the discipline of ecology there is now broad acceptance of dynamism within ecosystems (Corlett, 2016). In line with the rise of chaos theory and complexity in science more generally, the late 20th and early 21st centuries have seen a broad move in conservation away from a static, equilibrium-oriented focus on an ecosystem’s composition, towards approaches that recognise dynamism and change (Adams, 2003; Merchant, 2015).

This broad shift towards a greater acceptance of dynamism in ecology and conservation relates closely to the issue of human management of nature. In particular, it raises questions about ‘traditional’ western European approaches that have been characterised as ‘conservation as control’ (Adams, 2003) – actively keeping ecosystems in a particular form – and how the principle of ecological dynamism fits with landscapes that have been historically ‘managed’ by people. It is also relevant for discussion of the conservation of ‘wilderness’, and debates about the degree to which representations of ‘pristine’ or ‘wild’ nature are culturally constructed and managed ideas (Cronon, 1996; Moorhouse and Sandom, 2015).

These discussions intersect with longstanding, complex global debates about whether to integrate people into conservation, or to attempt to separate and protect ‘nature’, and who has the legitimacy and power to do so. Disagreements over whether to adopt ‘community-based conservation’ or ‘fortress conservation’ have been extensively discussed in political ecology, and formed the basis for what has been termed the ‘Great Conservation Debate’ (Buscher and Fletcher, 2020).

1.2 Orientation of conservation in time

A further significant feature of these debates is discussion of how conservation is positioned in time. Closely related to the issue of human management of nature, this involves discussion of whether to preserve the present state of nature, attempt to restore something based on past conditions, or enable something new to emerge (Corlett, 2016). These questions relate to debates around whether ‘novel’ ecosystems, especially those including ‘non-native’ species, should be resisted or embraced. While some view novel ecosystems as a threat to existing conservation paradigms (Simberloff, 2011; Murcia et al., 2014), others view them as an inevitable continuation of ecological dynamism that can
be accepted and even welcomed, including the active role of humans within them (Corlett, 2015; Wiens and Hobbs, 2015; Thomas, 2017).

Debate about the positioning of conservation in time has been given further relevance by the increasing prominence of ‘rewilding,’ with discussion of whether conservationists should attempt to recreate past archetypes (and if so from when) or to enable ‘future natures’ (Lorimer et al., 2015; Wynne-Jones, Strouts, et al., 2020).

Some rewilding approaches advocate systems based on a pre-human Pleistocene baseline (Donlan et al., 2006), including calls for extensive human intervention through species (re)introductions (Svenning et al., 2015). This includes, in some cases, arguments for the ‘de-extinction’ of extinct species using genetic technologies (Shapiro, 2015; Adams, 2017). Other approaches focus on the re-establishment of historical, Holocene, environments (Lorimer et al., 2015). Alternatively, an emphasis on the innovation of ‘future natures’ may include drawing on past processes but creating something new (Lorimer et al., 2015; Wynne-Jones, Strouts, et al., 2020). Indeed, for many the defining feature of rewilding is its promotion of ‘non-human autonomy’ (Prior and Ward, 2016) and, therefore, its acceptance that nature cannot be directed to produce a past archetype but will innovate novel ecosystems (Wynne-Jones, Strouts, et al., 2020).

1.3 Enter ‘the Anthropocene’

The concept of the Anthropocene has brought increased relevance to these issues. Questions about environmental dynamism, the relationship between ‘humans’ and ‘nature’ and positioning in time are central to debate about the idea of the Anthropocene itself.

For some, the idea of the Anthropocene has strengthened calls for humanity to ‘love your monsters’, finally accept the integration of humans and nature, and take responsibility for the impacts of human technology on the Earth (Latour, 2012). By extension, this involves increased ‘management’ of nature by humans. Reflecting a modernist Anthropocene narrative that scientists should ‘fix’ environmental problems using new, green technology (Bonneuil, 2015), so-called ‘ecomodernist’ positions contend that:

“...[t]he Earth we have inherited is now our responsibility... Our powers may yet exceed our ability to manage them, but there is no alternative except to shoulder the mantle of planetary stewardship’ (Ellis, 2012).
Other related framings are more cautious, but retain the narrative that the Anthropocene heralds the ‘end of nature’ with the potential for a ‘good’ Anthropocene managed by people (Bonneuil, 2015). Different positions explore the Anthropocene’s potential to deliver a change in how people interact with their environments, including viewing it through the prism of smaller, more diverse and localised connections with nature (Bennett et al., 2016). Some visions propose ‘multiple Anthropocenes’ that are shaped by politics and place, rather than a totalising, simplified concept (Preston, 2015). Such views often warn against what they perceive as potentially ‘dangerous experimentalism’ of some ‘eco-modernist’ ideas (for example climate geoengineering) opting instead to interpret the Anthropocene as an invitation to develop an ‘ethic of care’ for the Earth (Pellizzoni, 2016).

While some visions see the Anthropocene as a potentially positive shift in human relations with nature, others reject the idea of a ‘good’ Anthropocene as a contradiction in terms (Hamilton, 2015; Rockstrom, 2015; Stirling, 2015). These arguments criticise the Anthropocene concept for depoliticising human-environment interaction and ignoring smaller, localised, plural interactions with the environment. Such positions recognise that certain framings of the relationship between people and the environment are more widely expressed and elevated to global discussions, by virtue of the power held by those advancing them (Leach, Scoones and Stirling, 2010). The Anthropocene concept has been criticised for furthering this tendency by frequently presenting humanity falsely as a singular entity, and its influence on the Earth as a detached fact to be dealt with. Consequently, technical ‘fixes’ like geoengineering are promoted as if they are objective and disinterested, when in reality they are the product of a politically-determined framing of human relations with nature (Stirling, 2015). This has led to calls to conceive of nature as an active, political force rather than a detached entity (Stengers, 2015).

The Anthropocene concept also has implications for debate about how conservation is oriented in time. Views that accept or embrace the idea of the Anthropocene are implicitly compelled to focus on the future rather than the past, with an acceptance that attempts to retain or recreate past environments would be futile.

1.4 Visions for ‘conservation in the Anthropocene’

The longstanding discourse about human management of nature in conservation, combined with more recently emerging ideas of the Anthropocene, have produced a range of visions for how to approach conservation in the 21st century.
Mirroring discussion of the idea of the Anthropocene outlined above, conservation discourse contains a wide variety of perspectives. These include arguments for the avoidance of ‘management’ and the separation of humans and nature, arguments that human management of nature is not only unavoidable but desirable, and a range of other variations. While such debates frequently obscure the social and political complexities of specific contexts, it is nevertheless important to understand these framings. Understanding them enables better exploration of the way conservation is being enacted in particular places and enables the findings of specific case studies to be applied to the global discourse of conservation.

So-called ‘neo-protectionist’ visions (Buscher and Fletcher, 2020) have drawn on ‘eco-catastrophist’ narratives of the Anthropocene (Hamilton, Bonneuil and Gemenne, 2015). Embracing the idea that ‘humans’ – or rather, particular industrialised human societies – have transgressed ‘planetary boundaries’ (Rockström et al., 2009) such visions, for example ‘Half Earth,’ have prescribed a renewed focus on the separation of humans and nature, with more protected areas and expanded ‘wild’ places (Schnitzler, 2014; Kopnina, 2016; Wilson, 2016).

In contrast, other visions have drawn on the Anthropocene to argue for conservation based on increased human-nature integration, and a greater emphasis on novel, future-oriented systems. The influential idea of the Earth as a ‘Rambunctious Garden’ proposes an acceptance that ‘pristine’ nature is a myth, that the Earth is ‘post-wild’ and that people should tend to nature while retaining its ‘unruliness’ (Marris, 2011).

Similarly, ‘new conservation’ argues for a fundamental rethink of what conservation is, rejecting a historical focus on parks and protected areas in favour of nature in which humans are an integral component and in which novel ecosystems are accepted (Kareiva, Marvier and Lalasz, 2012). This position has much in common with Latour’s (2012) call to accept and own the impacts of human technology on the environment – but it is an idea that has been strongly resisted by some (Soulé, 2013; Doak et al., 2014). Others, by assessing the impacts of people on nature on an evolutionary timescale, have suggested that the current disruption may lead to greater diversity in the long-term, challenging approaches that seek to protect a version of nature from a particular point in time (Thomas, 2017).

Within these debates, there are also proposals for new ways to think about the human-nature relationship. Some visions emphasise the potential for people to recognise and renew their connectedness with nature and consciously link shared wellbeing, by ‘making kin’ with non-human species (Haraway, 2015) or ‘learning to be affected’ by wild life (Lorimer, 2015). Ideas like the
‘Charming Anthropocene’ highlight the opportunities for a renewed sense of wonder and an ethic of care in relation to human-influenced ecosystems, including as part of behaviours like agroecology, biophilic cities and rewilding (Buck, 2015).

The concept of the ‘Cosmocene’ proposes moving past Anthropocene discussions that emphasise either ‘mastery of nature’ or a return to ‘naturalism’, and instead reframes ‘nature’ as ‘wild life’ that is ‘in here’ not ‘out there’ (Lorimer, 2015). This proposition requires a set of ‘skilful processes’ enabling people to be ‘affected’ by wild life, and an acceptance of multiple forms of expertise and value (Lorimer, 2015). Similarly, propositions like ‘convivial conservation’ argue for more intentional ‘living with’ Nature in the Anthropocene (Büscher and Fletcher, 2019; Buscher and Fletcher, 2020).

In common with ‘new conservation’ this proposes a move away from protecting nature from humans towards promoting nature for humans, with people a welcome part of nature rather than trespassers in a non-human landscape – celebrating both human and non-human nature through ‘conviviality’ or ‘living with’ non-human nature. These ideas are also reflected in rewilding approaches that argue not for ‘stepping back’ from nature but ‘stepping alongside’ it (Ward and Prior, 2020).

Consequently, while many approaches share a broad acceptance of the integration of ‘humans’ and ‘nature’ there is a wide variety of ways to conceive that relationship – from the promotion of novel ecosystems to connecting people spiritually and aesthetically with non-human nature. For example, there is a contrast between interacting with nature based on different forms of ‘charisma’ upon which people place value, versus framing nature purely as ‘biodiversity’ to be classified, counted and mapped (Lorimer, 2015). There are also very different views over whether to conceive of nature in terms consistent with a capitalist market economy (Büscher and Fletcher, 2019). For some, concepts like ‘natural capital’ and ‘ecosystem services’ are important ways to promote the value of nature and reduce the possibility of it being discounted or ignored in decision-making (Mayer, 2018). For others, these terms represent a ‘final assault on nature,’ undermining its inherent value and risking the transfer of nature into other forms of capital (Maris, 2015).

As these different visions show, the Anthropocene has injected new impetus into pre-existing questions about conservation, particularly in relation to the role of ‘humans’ in managing ‘nature’. Should conservationists embrace stewardship of nature? Should they strive to separate people from nature? Should they base their activities on a particular point in time? Should they attempt to chart a different kind of relationship based on new ways of interacting with nature?
These are questions that have existed in conservation discourse for a long time, but the concept of the Anthropocene has renewed and intensified them. It is challenging conservationists, and evoking a range of new ideas about how people imagine and respond to nature. These debates illustrate how collectively, those concerned with conservation in the ‘Anthropocene’ are striving to come to terms with its implications, and to chart the kinds of conservation that are emerging.

2. Method

As outlined above, a frequent criticism of discussion of the ‘Anthropocene’ is that it tends to describe ‘humans’ and ‘nature’ as if they are single, homogenous global entities. In response, this paper explores specific examples of conservation in Sussex, southern England, to add to growing understanding of how ideas of ‘conservation in the Anthropocene’ are emerging in particular contexts. The focus on England contributes understanding of a context that is considered to be highly depleted of biodiversity (Hayhow et al., 2019). It is also particularly relevant as the UK looks to reshape its conservation frameworks after exiting the European Union (Bateman and Balmford, 2018).

The analysis presented here is founded on the understanding that reality, including the reality of human relations with nature, is not ontologically singular in a sense that might (with the definite article) be claimed to be ‘the truth.’ Reality is rather formed by a relational web of ‘associations’ between people and things (Latour, 2005) in which language forms a constituent part (Wood and Kroger, 2000). With this perspective, the world consists of a complex ‘tangle’ of associations between humans and non-humans (de Hoop and Arora, 2017). How ‘reality’ is understood will therefore depend on the interrelationship between different human and non-human actors, and the language used to describe them.

Consequently, instead of a single, immutable ‘truth’, multiple different ways to understand ‘reality’ are possible, depending on the prevailing conditions (Mol, 2003; Hajer and Versteeg, 2005). In the construction of different realities, language not only enables people to say things, it is also central to being and doing things because saying, being and doing mutually construct and reinforce each other in multiple ways (Dryzek, 2013; Gee, 2014).

To gain understanding of how ‘conservation in the Anthropocene’ is taking place in England, it is therefore important to analyse both discourse and practice. In doing so, it becomes possible to identify which visions of conservation are being expressed – which versions of reality are being
enacted. The combination of both discourse and practice analysis enables a more holistic understanding of the way that conservation in England is being constructed. The results of this analysis have implications for both English conservation itself and for discussion of the concept of the Anthropocene for conservation more broadly.

To construct a picture of conservation in Sussex, this paper draws upon discourse analysis of conservationists in England based on Q Method analysis (Dempsey, 2021b); and upon an analysis of practice based on comparative ethnography of two conservation sites – the rewilding project at Knepp Castle Estate, and a ‘traditional’ nature reserve managed by the Sussex Wildlife Trust (Dempsey, 2021a).

Discourse analysis (Hajer, 2005; Gee, 2014) enables the identification of different perspectives, and an understanding of which language and ideas are most active and influential (Hajer and Versteeg, 2005). Q Method is a popular technique to enable discourse analysis. Originating in psychology (Stephenson, 1935), it is a ‘quali-quantitative’ methodology that asks participants to sort a set of statements according to how closely they agree or disagree with them. The method then analyses these ‘sorts’ using factor analysis to distinguish common subjective positions on an issue (Watts and Stenner, 2012). Q Method has been used extensively in relation to human-environmental interaction (Cairns, 2012; Stevenson, 2015; Holmes, Sandbrook and Fisher, 2017; Zabala, Sandbrook and Mukherjee, 2018).

This paper draws on a Q Method study undertaken by the author to establish viewpoints among conservationists in England (Dempsey, 2021b). The study involved 30 participants, selected to represent a wide range of different positions, consistent with standard Q Methodology (Watts and Stenner, 2012). The participants were presented with statements that reflected different perspectives on how to approach conservation – representing diverse ways that conservation is understood. For this paper, the Q study provides a basis from which to understand conservation discourse in England, especially perspectives on whether and how conservationists should ‘manage’ nature, and how conservation is positioned in time.

Ethnography is a qualitative social scientific methodology that emphasises in-depth, context-specific knowledge, often gained by extended participatory experience in the field (Burawoy, 1998). To explore how discourse interacts with practice, this paper draws on comparative ethnographies of two sites in southern England (Dempsey, 2021a). In this case, the author spent more than 40 days across more than a year at the two sites being studied, keeping extensive written field notes. These were recorded on site where possible, or if not at the end of the same day, and later consolidated.
into more extensive accounts and reflections that were used for analysis and assessment of findings. Analysis of findings attempted both to explore pre-existing questions and be open to potentially novel themes.

These sites – the Sussex Wildlife Trust’s heathland nature reserve at Old Lodge, and the rewilding project at Knepp Estate – ostensibly represent contrasting approaches to how conservationists approach the ‘management’ of nature, specifically in the application of human ‘control.’ By exploring observed practice at these sites, it is possible to analyse how it relates to the different perspectives identified in the discourse analysis.

Together, the discourse analysis and the comparative ethnographies can be used to construct a picture of conservation in Sussex that can be related back to visions for conservation in the Anthropocene.

3. Analysis: the discourse and practice of English conservation

To understand the ways that conservation discourse and practice interact in England, and relate this to discussion of the Anthropocene, this paper now presents analysis under two themes that draw on major issues identified above: the role of human management; and orientation in time.

These two issues were identified as the primary themes for this analysis for multiple reasons. First, they are consistently present in discussion and debate about how to approach conservation both in England and internationally, as outlined above. Second, these two issues are central to the concept of the Anthropocene. The word ‘Anthropocene’ itself derives from the Greek Anthropos meaning ‘human being’; and kainos, meaning ‘new’, relating to a new epoch of geological time (Corlett, 2015). The twin concepts of humans and time are therefore embedded in the idea of the Anthropocene. Finally, the role of human management and orientation in time were both identified as key distinguishing features between different perspectives in discourse analysis of English conservation (Dempsey, 2021b).

For these reasons, this paper focuses on these themes while combining analysis from both discourse and practice.
3.1 Role of human management

Figure 1 shows a summary of the four perspectives identified by the Q study of English conservation discourse. Each of the perspectives represents a different approach to whether and how conservationists should ‘manage nature.’

Some elements of the discourse reflect a belief in high levels of management. ‘Management of Changing Nature’ is strongly committed to the integration of people and nature and the role of people in managing the environment. It agrees, for example, that ‘it is important for conservationists to know what kind of ecosystem or landscape they want to see in a particular place’ and strongly agrees that ‘embedding conservation targets in legislation is a vital part of protecting nature.’

‘Protection of Threatened Nature’ also favours extensive human management of nature. It strongly believes that ‘the idea of nature untouched by people is impossible in the UK, because human influence is everywhere’ and strongly disagrees with the statement ‘nature should be allowed to exist without human management.’

In contrast, the ‘Innovation in Nature’ perspective is much more sceptical of human management of nature. It agrees with the statement ‘nature should be allowed to exist without human
management’ and disagrees that ‘more often than not, ‘letting nature go’ by withdrawing human involvement would result in less biodiversity in the UK.’ Similarly, ‘Re-establishment of Wild Nature’ strongly believes that ‘nature should be allowed to exist without human management’ and disagrees that ‘human influence over ecosystems in the UK is so profound that conservationists have no choice but to accept responsibility for actively managing them.’

This broad divide between perspectives in favour of human management and perspectives against it is encapsulated in the statement ‘conservationists should manage habitats so as to benefit particular species that have been identified as being important.’ ‘Management of Changing Nature’ and ‘Protection of Threatened Nature’ agree with this statement, while ‘Innovation in Nature’ and ‘Re-establishment of Wild Nature’ disagree.

Despite this, there is a distinct difference between the two ‘anti-management’ perspectives. Specifically, while ‘Innovation in Nature’ does not agree with ‘managing’ nature, it does favour intervening and experimenting, before stepping back to let ecological processes take their course. It agrees that ‘conservation should include introducing species to perform particular ecological functions’ and that ‘conservationists should be able to be more daring with the introduction or reintroduction of species.’ ‘Re-establishment of Wild Nature’ disagrees with both these statements, indicating it is more aligned with ‘passive rewilding’ whereas ‘Innovation in Nature’ is consistent with ‘active rewilding’ approaches.

This divergence of opinion on intervention and uncertainty is also apparent in the statement ‘before doing anything, conservationists should gather extensive scientific evidence about the likely outcomes, so they can assess the potential risks and rewards of their actions.’ ‘Re-establishment of Wild Nature’ strongly agrees with this, whereas ‘Innovation in Nature’ disagrees, favouring a more experimental approach.

The perspectives identified in this discourse, therefore, provide greater understanding and complexity for what ‘management’ means in this context. It is possible to distinguish ongoing species-focused ‘management’ of particular habitats from ‘intervention’ with potentially uncertain outcomes. Depending on which of these is intended, different perspectives will be for or against human actions to affect nature, based in part on the degree of perceived uncertainty and risk.

The perspectives identified by the discourse analysis are enacted in practice in interesting ways in the two case studies. Old Lodge is, in many respects, a ‘traditional’ English conservation site. It has a formal management plan with the explicit objective to ‘continue restoring heathland that has been invaded by Bracken, Birch and Pine’ (Monk-Terry, 2014). It is a designated ‘Site of Special Scientific
Interest’ (SSSI) and a ‘Special Protection Area’ and is subject to a ‘Habitat Action Plan for Sussex’ that aims to enhance and expand heathland ecosystems. The management plan also includes Species Action Plans for several different species of birds and insects. Reflecting this, activity at the site involves considerable active management to reduce birch and bracken, expand heather heathland and encourage particular target species. This includes what participants describe as a ‘never-ending battle’ to prevent ‘invasive’ bracken from spreading across the site, and to control tree cover, particularly birch.

This active, formal management represents an expression of conservation practice in which humans and nature are highly integrated. Volunteers on site use language such as ‘invasive’, ‘bad’ and ‘bullies’ to describe bracken and birch – terms that are reflected in the management plan. This translates into a form of conservation aimed at preserving and restoring the existing heather heathland ecosystem through human intervention, with vegetation succession considered negative. In this respect, Old Lodge represents a modality of human-nature relations that is primarily expressed in the ‘Protection of Threatened Nature’ perspective. It represents practice consistent with statements including: ‘The idea of nature untouched by people is impossible in the UK, because human influence is everywhere’ and ‘More often than not, ‘letting nature go’ by withdrawing human involvement would result in less biodiversity in the UK’ (in this case, because withdrawal of management would lead to more uniform woodland habitat and the loss of heathland species).

A strong sense of human-nature integration is also reflected in how conservation volunteers at Old Lodge perceive their own role. Several expressed the view that they are guided by what traditional commoners on the heath would have done – cutting timber, grazing animals and clearing areas. This mindset has strong elements in common with the ‘Management of Changing Nature’ perspective: an active role for people, but also a willingness to accept dynamism and a deliberate lack of precision in the way nature is managed. This suggests a modality of human-nature relations in which people are legitimate, active, dynamic agents. In relation to different forms of ‘management’ it incorporates both cautious ongoing management as well as an element of uncertain intervention.

In contrast to Old Lodge, practice at Knepp Estate is underpinned by the concept of ‘rewilding’, influenced strongly by the Dutch site of Oostvaardersplassen (OVP) and the ideas of Frans Vera (Vera, 2002; Tree, 2018). Drawing on this, Knepp’s approach involves free ranging herds of cattle, ponies, pigs and deer that interact with the landscape resulting in a mixture of woodland, grass and scrub. In addition, ‘locally extinct’ species of white storks and beavers are being introduced.
The language Knepp uses to describe itself strongly emphasises the reduction of human management of ecosystems, stating:

“The vision of the Knepp Wildland Project is radically different from conventional nature conservation in that it is not driven by specific goals or target species. Instead, its driving principle is to establish a functioning ecosystem where nature is given as much freedom as possible” (Knepp Castle Estate, 2020).

This philosophy is implemented in practice in a range of ways. For example, despite significant populations of threatened species including Purple Emperor butterflies and Turtle Doves, Knepp has resisted calls to manage the site more intentionally for the delivery of those species. However, Knepp does not represent conservation that attempts to remove human influence completely. The project involves monitoring and reporting a wide range of biodiversity indicators and increased biodiversity is presented as ‘success.’

Therefore, while its language of rewilding aspires to reducing management of nature, its approach is founded on the assumption of increased biodiversity. Consequently, although Knepp differs from Old Lodge by not specifying which species it aims to increase, the drive for greater measurable biodiversity is a clear aspect of human-nature relations here. This is reflected in decisions about how many grazing animals to keep on the site. In the absence of large predators, the number of animals at Knepp is adjusted based on judgements about the carrying capacity of the land, enabling what was described as a ‘balanced fight’ between animals and vegetation. With Knepp’s production of ‘wild meat’ effectively fusing rewilding and farming, this also reflects a need to maintain high animal welfare standards through the provision of enough fodder.

The project is also explicit that it is not just designed to restore nature, but also to demonstrate a viable business strategy for the management of failing or abandoned farmland. To do this, Knepp draws income from a variety of sources, including agri-environmental subsidies, commercial and residential properties, a camping and safari business, and the production of ‘wild meat’ from the herds of animals.

Knepp therefore represents an interesting combination of ideas in relation to human management of nature. Its effective fusion of rewilding with aspects of farming reflects statements like ‘It is important to make human spaces, like cities or productive farmland, wilder and/or more hospitable for nature’ – a position that is held across all four perspectives in the discourse and reflects the perceived unavoidability of human-nature integration in England.
Rhetorically, Knepp also aligns with statements including ‘Nature should be allowed to exist without human management’ and ‘Conservationists should give over more land to nature that is self-willed, self-organising or autonomous’ – consistent with the ‘Innovation in Nature’ and ‘Re-establishment of Wild Nature’ perspectives. These ideas are represented in, for example, the refusal to manage for target species – described by the owner as being ‘back into human control, which we don’t want.’

However, the decision to intervene at Knepp to deliver ‘balance’ between animals and vegetation, and for animal welfare reasons, reflects alignment with the statement, held across the four perspectives, that ‘The idea of nature untouched by people is impossible in the UK, because human influence is everywhere.’

Knepp’s acceptance of continued human involvement, and the introduction of both domestic proxies and ‘missing’ wild species, reflects a position closely aligned with ‘Innovation in Nature.’ This is the only perspective to disagree strongly that ‘Interfering with ecological processes, without a clear idea of the outcomes, is unacceptably risky.’

Consequently, both Old Lodge and Knepp display practice reflecting both ongoing ‘management’ with lower perceived risk, and short-term ‘intervention’ with greater uncertainty. The balance at the two sites is different, with Old Lodge displaying more of the former and Knepp more of the latter, but it is interesting to observe that both forms are present at both sites.

3.2 Orientation in time

As outlined above, orientation in time is another key dimension of conservation discourse and practice.

In discourse, the ‘Management of Changing Nature’ and ‘Protection of Threatened Nature’ perspectives broadly agree on the desirability of management, but when it comes to orientation in time the former believes strongly in future-oriented, dynamic nature whereas the latter is focused on preserving existing ecosystems or restoring those from the recent past. For example, unlike other perspectives, ‘Protection of Threatened Nature’ agrees that ‘conservationists should broadly try to preserve the existing distribution of habitats and landscapes in the UK.’ It also disagrees with the statement ‘conservationists should allow ecosystems to change, for example through vegetation succession, even if it risks losing established species or ecosystem types,’ and agrees that ‘introducing or reintroducing species should take a back-seat to preserving the species that are already there.’
In contrast, while ‘Innovation in Nature’ and ‘Management of Changing Nature’ disagree over the desired extent of management, they both agree that ‘ecosystems that have no historical precedent can nevertheless have significant conservation value.’ They also both strongly disagree with the statement ‘the acceptance of ‘novel ecosystems’ lowers the bar for conservation by accepting negative human impacts on ecosystems.’

‘Re-establishment of Wild Nature,’ meanwhile, is the only perspective in favour of attempting to recreate ecosystems from the deeper past, agreeing with the statement ‘conservationists should attempt to recreate ecosystems that existed before human impacts took place.’

These different perspectives on orientation in time are enacted across the case studies in interesting ways. At Old Lodge, the practice of interpreting how historical commoners would have managed the heath relates to how conservation there is oriented in time. It reflects statements such as ‘Conservationists in the UK should focus on maintaining landscapes that have been shaped by humans for millennia’ and that ‘Conservationists should broadly try to preserve the existing distribution of habitats and landscapes in the UK.’ These are viewpoints that are unique to ‘Protection of Threatened Nature’ in the discourse analysis. Their presence at Old Lodge reflects the site’s status as an important protected area with key target species – resulting in the expression of a broadly ‘preservationist’ approach.

When looking at the specific issue of tree growth, however, a more complex picture emerges. Considerable time is spent cutting trees at Old Lodge, particularly recent growth of birch. In managing the extent of tree cover, however, the Wildlife Trust is required to make decisions that balance a desire to expand heathland with a desire to respect the historical character of the site in which tree cover has been more extensive. This tension is exacerbated by the opposing positions of different stakeholders, including Natural England and the Forestry Commission, which have different perspectives on whether to reduce or expand tree cover.

This presents a complex picture that includes a choice about the historical reference point for the site. While the recent history of Old Lodge involves more extensive tree cover, the wider heathland landscape reflects an older (but still historical) status. As things stand, the Trust has tended to maintain a greater number of trees, taking the view that this is an important part of the site’s unique character. In doing so it has accepted that the site’s formal status as an SSSI is assessed by Natural England as ‘unfavourable.’

Importantly, in making these decisions the Trust’s site manager and volunteers understand and accept that they are not implementing a precise set of outcomes, nor replicating a specific historical
point in time. Those involved described how they are ‘guided’ by an understanding of past conditions but that changing legislation, funding, personnel and ideas inevitably lead to changes in approach. The volunteers frequently described their interventions as ‘experimental’ or ‘suck it and see,’ while the site manager described the management plan as an interpretation of the site based on a wide range of inputs and perspectives, that will change over time.

Consequently, Old Lodge illustrates how an approach based extensively on ideas associated with ‘Protection of Threatened Nature’ is moderated by aspects of discourse that is common to all the perspectives. In particular, those at Old Lodge are implementing ideas including ‘Conservationists will never truly be able to reproduce past ecosystems’ and the common disagreement with ‘Ecosystems tend to remain balanced over time, kept in equilibrium through negative feedbacks.’ The result is conservation based on a past form, but interpreted as an expression of future nature.

There is also an underlying motivation relating to orientation in time at Knepp. The project is founded on the proposition that prehistoric Europe was not closed canopy forest, as historically presented (Ellenberg, 1988), but rather a mosaic, wood pasture environment maintained by the activity of large herbivores as ‘ecosystem engineers’ (Vera, 2002). This has influenced the design of the project. For example, the choice of animals to introduce was based on those present in Pleistocene Europe – red deer, longhorn cattle in place of aurochs, Exmoor ponies in place of tarpan, and Tamworth pigs in place of wild boar. The concept of a prehistoric wood pasture environment has also influenced ongoing management, especially about stocking densities that have been managed with a view to enabling such an environment to develop. The influence of theories of a prehistoric European wood pasture environment reflects the statements like ‘Conservationists should attempt to recreate ecosystems that existed before human impacts took place’ – a viewpoint consistent with the ‘Re-establishment of Wild Nature’ perspective.

The importance of orientation in time is also visible in the (re)introduction of species at Knepp – specifically white storks and beavers. These two (re)introductions have taken slightly different forms. In particular, while the proposed beaver introduction has attracted broad support, the introduction of white storks has been criticised by some for posing a potential risk to other species (Carter, 2020). It is notable that justification for both species rests on their ‘nativeness’ – something that is contested for white storks, but not for beavers.

The use of ‘nativeness’ is important here, used to support the (re)introduction of white storks and beavers and also used to guide the choice of domestic proxy species at Knepp. This emphasis on
nativeness suggests a modality in which certain species ‘belong’ in the landscape by virtue of their presence in the past.

The past-orientation has elements in common with ‘Protection of Threatened Nature’ and ‘Re-establishment of Wild Nature.’ Despite this, however, Knepp’s owner stated that ‘you cannot recreate the past; what we are doing is learning from the past to create something new,’ closely matching the position that ‘Conservationists should research how ecological processes functioned in the past and try to establish similar processes for the future’ – a position most closely resembling ‘Innovation in Nature.’ Practice at Knepp therefore reflects the combination of ideas about past ecological conditions with the ambition to afford ‘nature’ as much freedom to change as possible.

3.3 Common ground

Despite the diversity and complexity represented by the four perspectives in the discourse, important areas of common ground also exist between them, and are reflected in practice at the two case studies.

While the perspectives differ in their attitudes to ‘management’ of nature, they all share a broad acceptance of the integration of humans and nature in practical terms (even ‘Re-establishment of Wild Nature,’ which aspires to the removal of human influence from nature). There is general agreement with the statement ‘the idea of nature untouched by people is impossible in the UK, because human influence is everywhere.’ All four perspectives also agree that ‘conservationists should work to assist nature wherever it is, not just in protected areas’ and ‘it is important to make human spaces, like cities or productive farmland, wilder and/or more hospitable for nature.’

In relation to orientation in time, all four perspectives are opposed to simplistic attempts to recreate the past. They agree that ‘conservationists will never truly be able to reproduce past ecosystems’ and accept change by jointly rejecting the statement that ‘ecosystems tend to remain balanced over time, kept in equilibrium through negative feedbacks.’ They strongly reject the idea that ‘conservationists should explore the use of genetic technology to bring back extinct species (de-extinction).’

This common ground suggests that despite different perspectives, there is a broadly shared view in the discourse of English conservation in which: human influence in some form is ubiquitous, whether that is desired or not; and it is not possible to recreate versions of past conditions, whether that is desired or not.
Similarly for conservation practice, despite their different approaches Old Lodge and Knepp both represent the product of tensions between different ways of seeing human management of nature. This results in them having significant elements of common ground.

At Old Lodge, tension exists between managing the site to maintain its recent, more wooded historical state, versus managing it to create a less wooded heathland as stipulated by its SSSI status. This produces a negotiated approach in which management can be deliberately imprecise, guided by a sense of how traditional commoners would have behaved and a ‘suck it and see’ approach. A recognition that change over time is inevitable has led to more flexible conservation practice than might be expected from a ‘traditional’, ‘preservationist’ site.

At Knepp, too, practices reflects tensions between various perspectives. The philosophical desire to ‘let nature go’ is tempered by the recognition that ‘human influence is everywhere.’ The ambition for unmanaged nature is balanced by the reality that Knepp requires a functioning business model and also cannot tolerate the compromising of animal welfare. Meanwhile, the inspiration of a prehistoric wood pasture environment, and the deployment of ‘nativeness,’ is balanced by a belief that Knepp is, inevitably, innovating something new.

Both sites, therefore, are the product of competing ideas, with the result that their practice is more similar than their language might suggest. Specifically, they both contain tension between ongoing ‘management’ designed to reduce uncertainty and risk, and short-term ‘intervention’ that accepts greater uncertainty. Reflecting the common ground identified in the discourse analysis, the two sites also share visions of conservation that accept the inevitability of human engagement, and seek to interpret the past without attempting to recreate it.

Here, it is possible to see a combination of the history of European conservation based on human landscapes, the pressure of population density in southern England, a belief in ecological dynamism and acceptance of the inevitability of change. The result is the expression in practice of conservation ideas proposing that – whether desired or not – human involvement in nature is unavoidable and recreating the past is impossible.

### 3.4 Implications for ‘Anthropocene’ conservation

Interpreting these perspectives in the context of debate about conservation in the ‘Anthropocene’, it is possible to view ‘Management of Changing Nature’ as aligned with ‘new conservation’ approaches: positive about novel, dynamic environments and strongly committed to the continuing role of humans within them including the concept of ‘natural capital.’ It is consistent with an
acceptance of the concept of the Anthropocene, and the desire for an ethic of care in human engagement with the environment.

‘Innovation in Nature’ is also consistent with an acceptance of the Anthropocene concept: positive about novel ecosystems and change, and about the active role of humans. However, it has a strong dislike of micro-management, an enthusiasm for unpredictability, and a preference for short-term interventions that lead to reduced management in the long-term. This represents a greater appetite for risk and uncertainty that potentially goes beyond a cautious ethic of care to embrace a greater degree of experimentalism, potentially aligned with ‘eco-modernist’ ideas, that others may perceive as dangerous.

‘Protection of Threatened Nature’, in contrast, more closely resembles ‘neo-protectionism’ in its support for protected areas and species, its dislike of natural capital and novel ecosystems, and its focus on preserving existing habitats. However, it does not share the characterisation of ‘neo-protectionism’ that includes the separation of humans and nature. ‘Re-establishment of Wild Nature’, meanwhile, does share a neo-protectionist preference for separating humans from nature – rejecting formalised human management – as well as holding a dislike of natural capital and scepticism of novel ecosystems.

Despite these differences, however, the areas of common ground illustrate a picture of conservation in England that accepts a future-oriented, human-influenced environment. This places the discourse overall closer to ‘new conservation’ than to what Buscher and Fletcher (2020) call ‘mainstream conservation.’

In regard to practice, the forms of conservation observed at Old Lodge and Knepp build on the picture presented by the discourse analysis. Old Lodge is presented as a ‘traditional’ English conservation site and as such it has elements in common with the ‘Protection of Threatened Nature’ perspective. However, it is not ‘neo-protectionist’ as presented by Buscher and Fletcher (2020), owing to its deep integration of people and nature. Similarly at Knepp, despite a general desire to push for ‘less management’, there is also a recognition that the ability to do so has limits and that the separation of humans and nature is impossible. This reflects in part the presence in the discourse of ‘Re-establishment of Wild Nature,’ that both wishes for nature ‘untouched’ by people, but accepts it is not possible in the UK.

Much more apparent in these examples of practice, as in the discourse, are elements of ‘new conservation’. The acceptance of human influence, elements of novelty and a degree of imprecision and uncertainty is present at both sites. At Knepp this is broadly celebrated and encouraged,
whereas at Old Lodge it is more implicit, but it is apparent in both places. Both sites, while drawing respectively on the past, are not attempting to recreate it. In this, there are strong elements of ideas like the ‘Rambunctious Garden’ in which people are required to tend to nature but encouraged to accept its ‘unruliness.’

Further, though, the case studies combined with discourse hint at different ways of thinking about human relations with nature in conservation. These are discussed below.

4. Discussion

The analysis above explores conservation discourse and how different ideas are expressed in practice in case studies in England. Drawing on this analysis, it is possible to return to the issues of how conservation is being expressed in the ‘Anthropocene’. What implications do the discourse and practice outlined here have for some of the questions for ‘Anthropocene’ conservation? For example, should conservationists embrace stewardship of nature? Should they strive to separate people from nature? Should they base their activities on a particular point in time? Should they attempt to chart different kinds of relationship based on new ways of interacting with nature?

The combination of discourse analysis and analysis of practice presented here offers an understanding of these issues from multiple different perspectives, both conceptual and behavioural.

First, it is clear that in both discourse and practice, the analysis presented here shows forms of conservation that embrace stewardship of nature and reject the separation of nature and people. The discourse analysis contains, in the ‘Re-establishment of Wild Nature’ perspective, a view that desires nature unmanaged by people, but even this perspective accepts that this is not (currently) possible in the UK. All three of the other perspectives agree with human involvement with nature in some form. The differences between them are interesting, however. In particular, the ‘Innovation in Nature’ perspective’s view in favour of intervention but against long-term ‘management’ sets it apart from the other perspectives.

The acceptance of human integration with nature in the discourse is strongly reflected in practice at the two case studies. Despite their differences, both Old Lodge and Knepp accept the necessity of human involvement. In the case of Old Lodge this is done willingly, with people perceived as welcome, dynamic agents in the landscape. In the case of Knepp, there is a greater desire to push
towards ‘less management’ but nevertheless a willing acceptance that people unavoidably have a role to play, and a recognition that they are not attempting to create ‘wilderness’. Both sites reflect a tension between human engagement in the form of ongoing ‘management’, versus short-term intervention.

Relating this to the global discourse of conservation in the ‘Anthropocene’, it suggests that what Buscher and Fletcher (2020) label ‘mainstream’ conservation is not significant in this context, because a separation of humans and nature is rejected. In contrast, there are strong elements of ‘new conservation’ emerging from the discourse and practice. The consistent human intervention at Knepp to maintain dynamic processes, particularly the management of herbivores in the absence of predators, represents an acknowledgement of the interconnectedness of humans and nature in this context, even as a ‘rewilding’ site. At Old Lodge, too, consistent intervention is combined with a deliberate imprecision and flexibility of approach.

Both case studies are therefore aligned with Anthropocene visions like the ‘Rambunctious Garden’ (Marris, 2011). In line with Latour (2012), they reflect a broad acceptance that people at these sites should take responsibility for their agency within their environments. This resonates with ideas of the Anthropocene requiring an ‘ethic of care’ for nature, but the avoidance of ‘dangerous experimentalism’ (Pellizzoni, 2016). Different levels of uncertainty are tolerated, though, reflecting different perspectives in the discourse, with ‘Innovation in Nature’ more open to perceived risk-taking while ‘Protection of Threatened Nature’ favours eliminating as much risk as possible.

A second clear aspect of this analysis is the rejection of approaches that seek to replicate a particular past point in time. This is apparent in the discourse analysis that reveals a broad rejection of conservation based on ‘what has existed in the past’ and acceptance that ‘conservationists will never truly be able to recreate past ecosystems.’ It is seen in practice in the flexibility and experimentalism visible at Old Lodge, and the acceptance of innovation and novelty visible at Knepp.

This is not a simple rejection of the past, however. While all perspectives in the discourse agree that it would be impossible to replicate past conditions, they diverge on how to use the past as a guide. ‘Re-establishment of Wild Nature’ focuses on the deep, pre-human past whereas ‘Protection of Threatened Nature’ emphasises the more recent past or existing, human landscapes. While both ‘Management of Changing Nature’ and ‘Innovation in Nature’ are future-facing and accepting of ‘novel’ ecosystems, they both recognise the importance of ‘natural processes’ influenced by what has existed in the past.
These elements of the discourse are reflected in practice at both Old Lodge and Knepp, with both sites displaying a complex relationship with time. Knepp is, on one hand, in favour of reducing human management to give nature ‘as much freedom as possible’, with the implication that this could take the form of a novel, future-oriented ecosystem and the acceptance that recreating the past is not possible. On the other hand, the design and management of the project is founded on the idea of a prehistoric wood pasture environment, reflected in the choice of grazing animals and the continuous management of stocking densities. Old Lodge, too, displays a balance between maintaining the historical status of the site, expanding the heathland habitat, and accepting flexibility and unpredictability. For discussion of ‘Anthropocene’ conservation, these features imply a rejection of ‘neo-protectionist’ ideas and a tacit acceptance of ‘novel ecosystems’ consistent with ‘new conservation’ ideas.

Finally, the analysis of discourse and practice presented here has potential implications for how human-nature relations are perceived in ‘Anthropocene’ conservation. Both Old Lodge and Knepp, reflecting common ground identified in the discourse, represent conservation in which people are a welcome part of nature, not trespassers from whom nature must be protected (Buscher and Fletcher, 2020).

At Knepp in particular, the form of rewilding being implemented represents an emerging modality of human relations with nature in which conservation is fused with farming, and biodiversity goals are married to financial viability. This form of rewilding accepts the active role of people in nature and the emergence of a novel system, while basing decisions on an interpretation of the past. Such an approach is consistent with a vision that, as Ward and Prior (2020) say, is not about stepping back from non-human nature, but rather ‘stepping alongside more-than-human nature’. Similarly, practice at Old Lodge reflects an interesting, modern interpretation of people as active agents in a human landscape.

The analysis in this paper also suggests greater possibility for reconnecting people with ‘everyday’ nature. Old Lodge is open to the public and promoted as a place for people to engage with nature, connected to a sense of care and stewardship of the landscape. The link between modern activity and its historical, human character, provides a strong sense of place and a connection between people and the heathland landscape. Meanwhile, Knepp’s promotion of wildlife experiences within a densely populated region like southern England runs counter to much historical marketing of ‘exotic’ wildlife tourism. It contributes to expanding the idea of what is possible in a highly populous, nature-depleted landscape, increasing the proximity between people and non-human nature.
In these respects, both sites are reflecting the strong sense in English conservation discourse that: ‘It is important that society learns to value nature for its own sake.’ In doing so, they are consistent with concepts like the ‘Charming Anthropocene’ (Buck, 2015), ‘Good Anthropocene’ (Bennett et al., 2016), ‘Cosmoscene’ (Lorimer, 2015) and ‘Convivial Conservation’ (Büscher and Fletcher, 2019) that seek to reignite a human-nature relationship based both on wonder and care, in addition to a more formal quantification of nature in the form of biodiversity.

The discourse and practice analysed here reflect a number of factors present in England. The performance of ideas that ‘human influence is everywhere’ draws on a history of European conservation that emphasises human landscapes rather than ‘wilderness.’ This, combined with an acute awareness of human population density in southern England, produces conditions in which it is considered impractical, if not undesirable, to separate people and nature.

The expressions of conservation presented here also reflects a strong acceptance of natural dynamism. Practice at both sites reflects the common position in the discourse rejecting the idea that ‘ecosystems tend to remain balanced over time’ and accepting that ‘conservationists will never truly be able to recreate past ecosystems.’ At both Old Lodge and Knepp, this results in an orientation to the future, a degree of experimentalism, the inevitability of change, and that nature is dynamic and cannot be recreated. For potential future research, it is interesting that conditions promoting human-nature integration and future-orientation may be further strengthened by proposed changes to UK environmental frameworks based on ‘natural capital’ and the delivery of public goods (UK Government, 2018).

5. Conclusion

The discourse and practice of English conservation presented here display a rich blend of ideas and behaviours that reflect multiple different elements of debates about conservation in the ‘Anthropocene’.

Out of a tangle of associations between humans, non-humans, language, ideas and things, emerges a picture of conservation that is complex and multiple but nevertheless has clear themes. Specifically, it emphasises human ubiquity, and a rejection of recreating the past in favour of interpreting the past for the present and future.
Looked at more carefully, this picture also has elements consistent with more radical visions of conservation in the ‘Anthropocene’. It contains discourse and practice that promote dynamic, future-facing and human-oriented conservation, with nuanced perspectives on how people connect with nature, a sense of care and stewardship of the environment, and with a historically embedded sense of place.

These expressions of conservation reflect conditions in a densely-populated, human landscape in Europe. As conservationists, and everyone else, continue to grapple with the implications of the ‘Anthropocene’ and the global biodiversity crisis, this picture of English conservation offers hope that different communities around the world are finding their own ways to retain and renew positive connections with their environments.
Conclusion

The three papers presented in this thesis are designed to add substantially to understanding nature conservation. Collectively, they provide detailed analysis of different aspects of human relations with nature in conservation in England.

These papers are founded on the understanding that in-depth analysis of a specific context will reveal important complexity and nuance that is obscured by more general analysis and debate. They also represent a recognition that discourse and practice mutually construct and reinforce each other, and that to understand the different, complex ‘realities’ in a place it is necessary to analyse both. This thesis therefore presents these papers collectively, as together they enable greater understanding of the whole picture of human relations with nature in English conservation.

By presenting these papers, this thesis adds to the existing literature on how human relations with nature are conceived in UK conservation (e.g. Sandbrook et al., 2019; Wynne-Jones et al., 2020) by unpacking different perspectives as they exist among conservationists in England. Further, they contribute to discussion of human management and attempted ‘control’ of nature, adding to important existing research in this area (e.g. O’Mahony, 2020; Ward and Prior, 2020). By deploying analysis of both discourse and practice in a particular place, they present ways in which these different elements of the social construction of conservation are combining in England, to present a more holistic, nuanced and contingent picture. They also add to understanding of the interaction of conservation with the idea of the ‘Anthropocene’ (e.g. Lorimer, 2015; Buscher and Fletcher, 2020).

The picture presented collectively by these papers shows particular forms of conservation in their complexity in England, and how they are situated in global discourse. This contributes knowledge with important implications. For English conservation policy specifically, they highlight where (and crucially why) conservationists may disagree on issues of human relations with nature, how that may manifest in practice, and how it interacts with global debate.

The aim of this study was to gain understanding not only for the specific contexts being researched, but for conservation in England as a whole. This desire was reflected in the study design that included analysis of both discourse and practice, and chose two study sites with contrasting characteristics in designation, ownership, management approach, culture and scale. While no study could capture every dimension of conservation in England, this aim has been broadly successful. Limitations of this thesis include that it does not enable a direct comparison between upland and lowland landscapes, and that both sites are in southern England. However, the discourse analysis in the first paper captured perspectives that were relevant not just to narrow contexts but more
broadly, including participants based across the country. The different characteristics of the two ethnographic study sites also enabled them to be reflective of the larger context of conservation in England, comprising a range of different stakeholders, frameworks, funding streams and land uses. In particular, this study gained insights from participants with a range of different backgrounds and motivations – from academic researchers, to highly influential stakeholders, to community volunteers. With these characteristics representative of much conservation across England as a whole, it is reasonable to draw implications from this study not just for a specific context but for the country more generally. With English conservation frameworks in a state of flux, and major environmental legislation passing through parliament, these implications are significant.

This concluding section does not attempt to repeat the specific conclusions that are outlined in the individual papers. Rather, it seeks to bring together the findings of the three papers, summarise how they answer the research questions, and discuss some broader implications.

1. Findings and contributions

As outlined in the Introduction, the papers in this thesis have been designed to answer the following research question:

*How and why are the discourse and practice of nature conservation in England framed and enacted in the ways they are, and with what implications?*

The first paper, ‘Understanding conflicting views in conservation: an analysis of England’, addresses the sub-question:

*How, why and with what implications are different framings of nature conservation expressed in the discourse of conservation in England?*

Using Q method, the paper answers this question by identifying four significant perspectives among conservationists in England and highlighting the most important ways in which they differ. The paper identifies the extent of human management as a key distinguishing factor between the perspectives, with ‘Management of Changing Nature’ and ‘Protection of Threatened Nature’ in favour of ongoing management, while ‘Innovation in Nature’ and ‘Re-establishment of Wild Nature’ are opposed. Further, the research distinguishes between ‘interventions’ and ‘management’. It identifies that ‘Innovation in Nature’ is strongly in favour of intervention but not ongoing management, while ‘Protection of Threatened Nature’ is in favour of management but wary of interventions that are perceived to be risky.
The paper identifies past- or future-orientation as another key distinguishing factor between the perspectives. On this issue, ‘Management of Changing Nature’ and ‘Innovation in Nature’ are aligned in their orientation towards the future and their acceptance of ‘novel’ ecosystems. In contrast, ‘Protection of Threatened Nature’ is focused on preserving existing systems or restoring those from the recent past, while ‘Re-establishment of Wild Nature’ advocates ecosystems based on conditions from the deeper, pre-human past. These findings bring greater understanding of why, for example, conservationists may object to ‘novel’ ecosystems or ‘non-native’ species. Those with a ‘Protection of Threatened Nature’ perspective may object based on a perceived threat to existing species and habitats, while those aligning with ‘Re-establishment of Nature’ may object because ‘novel’ systems do not adhere to a perceived pre-human archetype.

A further significant finding is that orientation towards the future or past aligns with acceptance or rejection of the idea of ‘natural capital’. ‘Management of Changing Nature’ and ‘Innovation in Nature’ accept the utility of this concept, in line with their general acceptance that nature should be integrated with humans in conservation. However, consistent with its rejection of ongoing human ‘management’ of ecosystems, ‘Innovation in Nature’ more broadly rejects bureaucratic frameworks and targets for conservation, viewing them as potentially counter-productive. Both ‘Protection of Threatened Nature’ and ‘Re-establishment of Wild Nature’ reject the concept of ‘natural capital’, but the research identifies contrasting reasons for this opposition. ‘Protection of Threatened Nature’ objects to the perceived undermining of nature’s inherent value, while ‘Re-establishment of Wild Nature’ objects to the whole idea of humans meddling in natural systems.

The first paper also identifies important areas of common ground in English conservation discourse. In particular, all four perspectives accept the need to protect nature across the whole landscape and to embrace a diversity of conservation approaches. Contrary to much polarised debate, all four also accept the idea of ‘rewilding’ as a legitimate part of conservation activity, although there is an indication they differ over how much perceived risk is acceptable.

These findings have significant implications, particularly in England, where conservation frameworks are being overhauled using ‘natural capital’, payments for public goods, and environmental land management schemes (ELMS). The findings about why conservationists may object to natural capital approaches, in particular, is significant for policymakers seeking support for new frameworks. They indicate that some conservationists will object to the principle of framing nature in capitalist terms, while others are opposed to overly bureaucratic frameworks that may impede ecological dynamism. This is important in developing, for example, approaches to Biodiversity Net Gain, because how these schemes are presented to conservationists may affect the extent to which they are accepted.
Similarly, the finding that conservationists are broadly tolerant of a diversity of approaches, and specifically accepting of the concept of rewilding, is potentially important for the future delivery of plural conservation strategies. This includes, for example, the use of different methods in the implementation of Nature Recovery Networks (DEFRA, 2019).

The second paper, ‘Everything under control? Comparing Knepp Estate rewilding project with ‘traditional’ conservation’, addresses the sub-question:

\[ \text{How, why and with what implications are different practices of nature conservation in England enacted in the ways they are?} \]

Using comparative ethnography, the paper answers this question with particular reference to the concept of ‘control’ and the significance of ‘rewilding’ in conservation. It tests the frequent assertions that 1. ‘traditional’ forms of conservation in England aim to exert significant control over nature (Adams, 2003; Merchant, 2015; Anderson et al., 2019); and 2. that rewilding represents the reduction or relinquishing of that control (Monbiot, 2013; Schnitzler, 2014; Pereira and Navarro, 2015).

The paper affirms that the concept of ‘control’ is not a simple one, and clarifies the term by establishing that it has at least four different dimensions: the ‘stabilisation’ of existing systems; the delimitation of ‘location’ for particular forms of life; the use of ‘prediction’ to control non-human nature over time; and the requirement for ecosystems to produce particular ‘outputs’.

Using these different dimensions of control as a framework, paper 2 analyses conservation practice at Knepp Estate rewilding project and the Sussex Wildlife Trust’s Old Lodge reserve. The paper illustrates how Old Lodge enacts control as ‘stabilisation’ in the way it maintains a particular form of heathland habitat, preventing vegetation succession. It implements control as ‘outputs’ in its focus on protecting and increasing particular target species. It applies elements of control as ‘location’ through a rejection of perceived ‘invasive’ species. However, it deploys little control as ‘prediction’ as its consistent ongoing management renders this less relevant. Overall, practice at Old Lodge is characterised by a degree of flexibility, resulting in the formal management plan being interpreted and implemented not just in precise technical ways, but also ‘by feel’.

The paper presents how Knepp Estate deploys less control as ‘stabilisation’ than Old Lodge, although some stabilisation exists in the form of a desire for ‘balance’. More significant elements of control exist in the form of required ‘outputs’. In particular, there is a requirement for increased biodiversity which results in management decisions including the regulation of stocking densities. In this case, the locus of control as outputs is shifted from particular species to an increase in biodiversity.
generally. However, control as outputs is also visible in a perception that the project will deliver a wood pasture ecosystem. Control as ‘prediction’ is more apparent at Knepp than at Old Lodge. It is visible in the prediction that the introduction of certain species will result in a wood pasture environment. It is also visible in the specific examples of species (re)introduction, particularly that of beavers. Finally, the analysis highlights the existence of control as ‘location’, especially in the choice of proxy species introduced, and the justifications for introducing beavers and white storks based on ‘nativeness’.

Having presented these different enactments of conservation practice, paper 2 draws out some of the implications. In particular, it suggests that by thinking of control in conservation not as a simple, linear concept from ‘high’ to ‘low’ control, but rather as varying configurations of multiple control dimensions, it allows for much less polarised discussion. In particular, it makes it possible to think of rewilding not as a complete departure from ‘traditional’ conservation, but as a reconfiguration of the dimensions of control. This enables the concept of rewilding to retain its differentiation from other forms of conservation, but at the same time take its place as a legitimate feature of plural conservation strategies.

Finally, the third paper, ‘Life and Time: the discourse and practice of English conservation in the Anthropocene’, addresses the sub-question:

What are the implications of the discourse and practice of nature conservation in England for conservation in the ‘Anthropocene’?

To answer this question, paper 3 outlines how debate of the idea of the ‘Anthropocene’ has acted upon pre-existing discussion in conservation – especially the role of human management and how conservation is oriented in time. It identifies that the Anthropocene concept has contributed to the development of a range of different visions for conservation in the 21st century, including ‘neo-protectionist’ approaches such as ‘Half-Earth’; ‘new conservation’ and related ideas like the ‘Rambunctious Garden’; and a wide variety of other visions including some based on a fundamental re-shaping of how the relationship between ‘humans’ and ‘nature’ is perceived.

The paper goes on to combine analysis of the discourse of English conservation based on the Q method research, with analysis of the practice of English conservation based on the comparative ethnography. It interprets this picture of English conservation in the context of debate about conservation in the Anthropocene.

Across the discourse and practice of conservation in England analysed here, the picture that emerges is of conservation that accepts the ubiquity of humans in the landscape (whether or not
that is considered desirable); and accepts that the recreation of ‘nature’ from a particular past point in time is not possible (though some might wish it were).

In general terms, this aligns the discourse and practice presented here broadly with ‘new’ conservation and ideas like the ‘Rambunctious Garden’. Looked at closely, though, there are further elements that suggest a shift in the relationship between ‘humans’ and ‘nature’ in these contexts. Specifically, there is evidence of types of conservation that seek to re-engage people in multiple ways, see them as welcome parts of nature rather than trespassers, and foster a sense of wonder in ‘everyday’ nature experiences. This potentially represents a shift from a human-nature relationship based on ‘management’ or ‘control’ towards one based more on ‘care’. It takes place within conceptions of nature that are historically embedded and interpreted – with perceptions of past conditions actively used to shape the future – and at the same time accepting of novelty and change.

Taken together, these papers address the overarching research question: How and why are the discourse and practice of nature conservation in England framed and enacted in the ways they are, and with what implications?

In particular, the combination of discourse analysis and analysis of practice across this thesis provides an understanding of conservation in England that would not be gained through one method alone. Returning to ideas related to performativity, these papers together enable and understanding of which language, ideas and theories are finding their ‘conditions of felicity’ (Callon, 2007) in conservation practice in England.

2. Implications

This thesis is founded on the recognition that exploring the complexity of a particular context of conservation – in this case in England – is necessary for understanding the many issues at play, particularly in relation to how human relations with nature are perceived and practised. This thesis also recognises the utility of extrapolating from the specific to the general – by using individual case studies to test broader themes and assertions. It is therefore possible to attempt to outline some implications of this research both for conservation in England and more widely.

As outlined in the Introduction, the context for the research presented here is a sense that there are significant tensions between incompatible philosophies within conservation. These are perceived to exist on issues including human management of nature, ecological equilibrium and dynamism, novel ecosystems, non-native species, human landscapes, natural capital, species (re)introductions, and
rewilding. Differences on these issues are presented as being particularly acute in relation to the idea of the ‘Anthropocene’. These debates are not purely academic. They have material implications for environmental policy both in the UK and globally.

As outlined throughout this thesis, the UK – and England specifically – are in the process of reshaping their environmental frameworks following the country’s exit from the European Union. For England in particular, this is taking place through the 25 Year Environment Plan, Agriculture Act and Environment Bill. Together, these propose major changes to environmental governance including the implementation of Environmental Land Management Schemes and Nature Recovery Networks. In particular, the Environment Bill includes proposed targets for protecting and restoring biodiversity, with aspirations for a ‘Net Zero equivalent for nature’ to spur large scale action for halting biodiversity loss. Alongside this, the Agriculture Act embeds a ‘natural capital’ approach and payment for public goods into the regime of subsidies that will succeed the Common Agricultural Policy.

Globally, too, policy makers are grappling with how to address the biodiversity crisis, with an increasing recognition that this is also vital for addressing the parallel climate crisis. This challenge is being approached through processes including the Convention on Biological Diversity, and its Post-2020 Global Biodiversity Framework, that seek to ‘bring about a transformation in society’s relationship with biodiversity’ and deliver a ‘shared vision of living in harmony with nature’ (IUCN, 2021). This makes the research presented here especially relevant, as an illustration of how such a vision may play out in practice in a specific context.

Taking this context into account, and the important initiatives, processes and frameworks outlined above, it is possible to outline a few particular implications.

2.1 Reducing polarisation in conservation

An important general conclusion of this thesis is that, while there are indeed differences within the discourse and practice of conservation in England, there is also a lot of common ground. In particular, this research highlights a broad acceptance that a diversity of approaches in conservation is desirable.

The first paper highlights the extent of consensus in conservation discourse. In particular, it finds significant tolerance for a range of conservation approaches, and support for plural conservation strategies. Contrary to some discussions, it finds broad acceptance of the idea of ‘rewilding’, suggesting that the concept is accepted as a legitimate option in the conservation toolbox.
The second paper similarly offers grounds for greater consensus within conservation. By approaching the issue of ‘control’ as a configuration of multiple dimensions, rather than a linear concept, it is possible to avoid a simplistic choice between ‘high’ and ‘low’ control. Instead, different conservation choices can be viewed as adjusting multi-dimensional ‘configurations of control’. This makes discussion of different types of conservation more nuanced and more readily brings rewilding approaches into the conversation, rather than presenting them as ideas that are threatening or external to established conservation practice.

The third paper combines the discourse and practice of conservation in England to present a picture of conservation that also contains significant common ground. The picture of English conservation that emerges is characterised by an acceptance of human stewardship of nature and of future-facing, dynamic ecosystems. This is striking in relation to global debate on conservation in the ‘Anthropocene’ in which the active role of people, in particular, is contested. While the conservation community in England contains different underlying motivations and hopes, the common ground identified here provides a basis from which to work positively together.

2.2 The importance of context-specific perspectives

A further important conclusion for this research is the importance of recognising and understanding the particular perspectives and practices in different places. By focusing specifically on England, this thesis has been able to present a picture of conservation discourse and practice that contains significant depth. It has enabled distinctions to be drawn between the discourse and practice of conservation in England, and those presented in global discussions.

In the first paper, for example, the identification of the ‘Re-establishment of Wild Nature’ perspective is consistent with global ‘neo-protectionist’ concepts such as ‘Half-Earth’. Importantly, however, this research also identified an acceptance across all perspectives, including ‘Re-establishment of Wild Nature’, that ‘nature untouched by people is impossible in the UK because human influence is everywhere.’ Findings such as this highlight important nuance for how conservation is perceived in England in relation to global debates.

Similarly, the second paper presents two case studies from Sussex in southern England. In doing so, it is able to draw detailed conclusions about how the practice at these sites relates to broader discussion of conservation and rewilding. Importantly, the findings of this research reflect the particular conditions present in a densely populated human landscape, and how ‘control’ operates in this context. This brings much needed depth and texture to discussion of rewilding, which is necessary for debates to be meaningful.
The third paper brings these ideas together and further emphasises the importance of context-specific understanding. In particular, in presenting a picture of conservation discourse and practice that is largely human-oriented and future-facing, it contrasts with what is sometimes presented as ‘mainstream’ conservation practice in global discourse. Again, this reflects the particular conditions present in southern England – a densely populated historical landscape in a country with a post-industrial ‘developed’ economy.

Taken together, the three papers present a detailed exploration of this specific place. They both challenge, and give inspiration for, the ongoing discussions around approaches to conservation generally in the 21st century.

3. Future Research

Inevitably for a subject as rich and complex as human relations with nature in conservation, there are many questions that have been beyond the scope of this thesis and that could form the basis for future research.

One clear limitation of this research is that it only analyses the discourse and practice of those explicitly involved in conservation activities. It does not address the views and activities of other groups who are crucial to human relations with nature. Most especially, future research could build greater understanding of the role of farmers, foresters and those responsible for other rural industries such as field sports. The perspectives of a wider range of the public – both rural and urban – have also not been part of this research. Establishing whether and how these different groups differ in their views from conservationists, building on the analysis presented here, would be of significant interest.

A further area of potential future research would be to use the perspectives identified in paper one as the basis for more quantitative research. As outlined in the paper, Q method as a methodology identifies which significant perspectives exist in a community, but does not provide any indication of what percentage of that community holds each view. A quantitative survey of conservationists in England, to establish how commonly held each perspective is, would be an interesting avenue of further research.

One of the strengths of this research is that it is targeted at a specific geographical context – namely terrestrial environments in England. This is also a limitation, however, and future research could
apply similar methods to analysing conservation discourse and practice in other places, including Scotland, Wales and Northern Ireland, as well as marine environments.

In particular, it would be interesting to apply the framework established in paper 2, identifying different dimensions of control, to other contexts. This research suggests such a framework could be useful in clarifying discussions of ‘control’ in conservation and reducing polarisation, particularly around rewilding. Further use of this framework in other contexts, to explore its potential value, would be useful.

4. Final Reflections

The questions addressed in this thesis are broad and complex. This research has been able to explore only a small fraction of the issues involved. Nevertheless, it is hoped that the papers presented here make a substantial contribution to knowledge and understanding of conservation – in England specifically as well as drawing implications more widely.

Perhaps the most significant conclusion from this research is to return to the issue of the challenges being faced by conservationists – a global biodiversity and climate crisis. Conservationists are sometimes presented as being at loggerheads with each other about how to tackle these challenges. Despite this, they are at least broadly agreed that these challenges do urgently need to be tackled. This research has identified the complexity and richness of conservation discourse and practice in England. But in their fundamental motivation to tackle the biodiversity and climate crises conservationists are, in important ways, on the same side.
References


‘Davis et al 2011 Don’t judge species on their origins’ (no date).


Knepp Estate (2021) *A sad farewell to Bramber the beaver*, https://knepp.co.uk/new-blog.

Kopnina, H. (2016) ‘Half the earth for people (or more)? Addressing ethical questions in


Ngo, H. T. *et al.* (2019) *Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem*


Stirling, A. (2015) Reigning Back the Anthropocene is Hard - But Earth’s Worth It, STEPS Centre Blog,


